Comprehensive Nutrient Management Plan

Riverside Dairy Farm, Inc

Prepared by Dennis J Godar
In Cooperation With the
Polk County Soil and Water Conservation District
Date Prepared: 8/30/2011

For Years; 2011-2015

Operation Name: **Hatcher's Riverside Dairy Farm, Inc**
Owner / Operator's Name: **Warren Hatcher**
Mailing Address: **419 Patty Road**
Benton, TN 37307

Farm Address: **435 Patty Road**
Benton, TN 37307
Operation Telephone Number: **(423) 338-2376**
(423) 338-2780

Conservation Planner

As a Conservation Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and *Producer Nutrient Management Activities* documents for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Conservation District

The Conservation District has reviewed the CNMP documents and concurs that the plan meets the District's goals.

Signature: _____ Date: _____
Name:
Title:

Owner/Operator

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: _____ Date: _____
Name:

Section 2. Manure and Wastewater Handling and Storage

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Sections 4. Land Treatment

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Section 6. Nutrient Management

The Nutrient Management component of this plan meets the Tennessee Nutrient Management 590 and Waste Utilization 633 Conservation Practice Standards.

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Section 7. Feed Management (if applicable)

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Section 8. Other Utilization Options (if applicable)

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Table of Contents

Section 1. Background and Site Information

Purpose of the Comprehensive Nutrient Management Plan (CNMP)

The Comprehensive Nutrient Management Plan (CNMP) is a conservation system for your animal feeding operation. It is designed to address, at a minimum, the soil erosion and water quality concerns on your operation. The following soil erosion and water quality concerns have been identified on your farm:

Manure and Nutrient Management is managing the source, rate, form, timing, placement and utilization of manure, other organic by-products, bio-solids, and other nutrients in the soil and residues. The goal is to effectively and efficiently use the nutrient resources to adequately supply soils and plants to produce food, forage, fiber, and cover while minimizing the transport of nutrients to ground and surface water and environmental degradation.

Nitrogen and Phosphorus vs. Water Quality

Nitrogen and Phosphorus are two nutrients that have the potential to impair the quality of our groundwater and surface water. Nitrogen leaching out the root zone may enter a tile and be transported to surface water or it may leach to the groundwater. The EPA Drinking Water Maximum Contaminant Level (MCL) for Nitrates is 10 mg/L. Phosphorus leachate, or runoff entering the surface water may contribute to excessive algae growth which may cause low oxygen levels in surface water. This in turn may impair aquatic life. This manure and nutrient management plan will help to protect the groundwater and surface water.

1.1. General Description of Operation

Riverside Dairy Farm, Inc is a dairy operation with approximately 595 milking cows and an additional 100 head of calves in confinement. Additional growing stock and heifers are not confined and raised on rotational pastures. The operation is operated by the Hatcher family.

Approximately 830 acres of spreadable cropland and pastures are included in this CNMP.

The farm fields are located in a rural area with rolling land in the foothills of the Chilhowee mountains. The fields are drained to the west directly into the Hiwassee River and Ocoee River. Most of the soils along the river bottoms will have high water tables in the spring. Land use in the area is mostly cropland, pastures and hayfields. Features in the fields and pastures include: ponds, grass waterways and riparian buffer strips that border the river and grass buffer strips. Grass buffer strips that are properly maintained help reduce impacts of soil erosion and nutrient runoff from fields. Grass buffer strips and riparian buffers also provide good wildlife habitat along the streams.

There are numerous non-farm residences located within a mile of the facilities. General topography of the area is 0-25 % with the majority 0-12%.

The majority of fields and the facilities for the operation are located in the Ocoee River Outlet sub- watershed, (12-digit HUC: 060200030212) and the Ocoee River-10-digit watershed, (0602000302). This area is part of the 8-digit HUC: 06020003 Sub-basin known as the Ocoee Watershed.
Some of the fields in the northern part of the operation are located in the Hiwassee River-Parker Branch sub-watershed, (12-digit HUC: 060200021403) and the Chickamauga Lake-Hiwassee River-10-digit watershed, (0602000214). This area is part of the 8-digit HUC: 06020002 Sub-basin known as the Hiwassee Watershed.

(See watershed reports at the end of this section).

Additional Information:

The Hatcher Family own and operate Riverside Dairy Farm, Inc. in Polk County at 419 Patty Road, Benton, TN. There are approximately 600 head of cattle that are maintained in total confinement. All remaining cattle are on pasture. Riverside Dairy Farm, Inc. is considered a Class II Animal Feeding Operation according to TDEC guidelines.

Riverside Dairy Farm, Inc. does not intend to milk more than 600 cows at any point in time nor have more than 699 head in total confinement at any point in time. The 588 milk cows average 1,350 pounds per head. The young stock in confinement average 150 pounds per head.

Crops produced on the farm include corn silage (25 t/a), small grain for feed (equivalent to 50 bu/a); hay (6 t/a). Additional pasture fields may be included once soil testing is completed or if additional acreage may be needed for the application of manure.

They are exploring the possibility of composting the solid manure that is produced on the farm. They have a solid separator connected to the waste discharge from the freestall barn, milking parlor and holding area. The building where the solid separator is located may be utilized for composting activities.

1.2. Sampling, Calibration and Other Statements

- Manure sampling frequency: All solid and liquid manure from the lagoons will be sampled and analyzed annually. Use best management procedures for sampling found in manure testing references in Section 6.

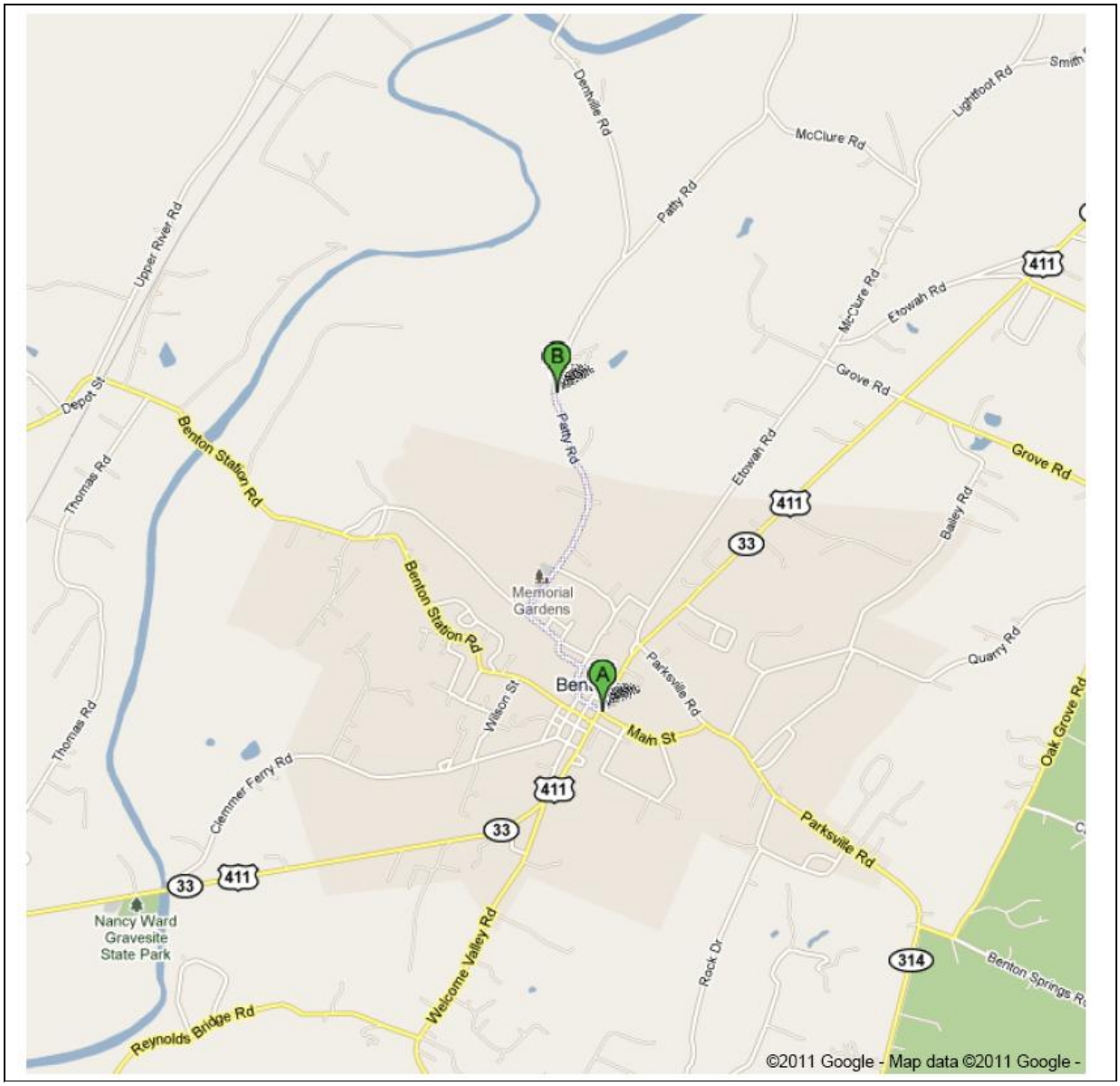
- Soil testing frequency: Soil testing should be done a minimum of every four years. or sooner. Soil testing is an important tool especially for organic farming methods which manage soil fertility with proper use of manure and with crop rotations and plant diversity. Use best management procedures for sampling found in soil testing references in Section 6.

- Equipment calibration should be accomplished annually and whenever changing rates. For surface applied solids, use of the 'tarp' method also is a check on uniformity of applications. For irrigation of liquid manure, buckets placed in the field can help measure uniformity and also catch as applied samples. Use best management procedures for manure application equipment found in Section 2.

- Measures to prevent direct contact of animals with water: Dairy cows, when housed inside of barns will have no contact with water resources. Grazing animals should be restricted from having free access to streams. Improved stream crossings should be maintained and exclusion fences are recommended in sensitive areas.

- Silage leachate from the bunk silo is managed by draining from the cement floors to a grass filter strip. This area need to be maintained so that channelized flow does not occur. Filter strips should be fenced to exclude livestock and vegetation managed for best performance. Vegetation should be cut for hay to remove nutrients or could be flash-grazed if conditions allow without damage to the vegetation.

Location & Driving Directions:



A Main St

	1. Head **northwest** on **Main St** toward **Ward St**	go 420 ft total 420 ft
↱	2. Take the 2nd right onto **Town Creek Rd**	go 0.1 mi total 0.2 mi
↰	3. Take the 1st left to stay on **Town Creek Rd**	go 0.1 mi total 0.3 mi
↰	4. Take the 1st left to stay on **Town Creek Rd**	go 0.1 mi total 0.5 mi
↱	5. Take the 2nd right onto **Patty Rd** Destination will be on the left About 2 mins	go 0.8 mi total 1.2 mi

B 435 Patty Rd, Benton, TN 37307

Resource Concerns

Soil Quality Concerns

	Soil Quality Concern	*Fields*
X	Ephemeral Gully Erosion	Minimum tillage and winter cover crops are practiced. All fields meet T values. (Tolerable soil loss limits.) Pasture and hay fields maintain good growth given adequate rainfall.
X	Sheet and Rill Erosion	
X	Stream/Ditchbank Erosion	A stream runs through the operation. Stream crossings need to be monitored constantly for damage and rutting from cattle traffic.
	Wind Erosion	Not a problem here.

Soil Erosion/Soil Quality:
This farm practices conservation practices to minimize erosion and improve soil quality. These practices include: Rotational grazing, Fencing, Travel Lanes, Stream Crossing, Buffers and Setbacks. Stock watering systems and this nutrient management plan will also help improve productivity of the grazing system. More information on conservation practices, and "RUSLE 2" individual field profiles (soil loss estimate reports); can be found in Part 3, "Land Treatment Practices". Gully formation is a concern in a few cattle traffic lanes in steeper areas.

Water Quality Concerns

	Water Quality Concern	*Fields*
X	Facility Wastewater Runoff; as secondary containment/treatment from the storage pond.	All wastewater and manure goes through a solids separator and outflow enters a primary lagoon for treatment.
X	Manure Runoff (Field Application)	All fields: manure runoff is avoided by not applying at excessive rates, and maintaining a minimum of 30' vegetated buffer along streams.
X	Manure Runoff (From Facilities)	Lot runoff is curbed and collected very well into the storage pond.
X	Nutrients in Groundwater	All fields: nutrient leaching is minimized by not over applying nutrients and using appropriate rates, timing and application methods for manure and fertilizer applications. Soil types have medium to low leaching risks.
X	Nutrients in Surface Water	All fields: in addition to rates and timing considerations listed above, grass waterways and buffer strips along the surface streams and pond are established.
	Silage Leachate	Silage leachate is collected and treated through a grass filter strip. Feed commodities are stored in sheds. Hay is wrapped also.
	Excessive Soil Test Phosphorus	Several fields have extremely elevated and manure will be applied at or below P removal rates. Nutrient plan allows manure applications on other fields at nitrogen based rates.
	Tile-Drained Fields	None

Water Quality:

This farm practices conservation practices to improve water quality for the farm as well as the surrounding watersheds. Surface water is protected from erosion and surface runoff of nutrients by manure application setbacks, filter strips, nutrient management and rotational grazing to reduce erosion and maximize grass & legume growth. Water from the well has been piped to several waterers.

One concern is the cattle drinking directly from the pond which causes stream bank erosion and sedimentation in the pond.

Another concern is the intermittent stream that runs through the pastures. Some areas may benefit from fencing to exclude the cattle most of the time. The stream can be flash grazed intermittently to keep vegetation grazed down. This practice would also be beneficial for wildlife.

Other Concerns Addressed

	Other Concern	*Fields*
	Acres Available for Manure Application	Adequate acres are available for liquid from the dairy storage pond.
	Aesthetics	Farm is very well maintained and has good appearances from the road and around the farmstead.
	Maximize Nutrient Utilization	Liquid Manure is applied to silage & hay fields and pastures to maintain soil nutrients.
	Minimize Nutrient Costs	Commercial fertilizers are minimized. Manure is the basis of the sustainability of the farm.
	Neighbor Relations	No problems, good management of facilities should help keep good neighbor relations.
	Profitability	Home grown forages and good use of manure nutrients to make the operation more sustainable. Cows' longevity, herd health and productivity all contribute to good profitability.
	Regulations	CNMP meets TN CAFO regulations that apply to Class 2 CAFO operations.
	Soil Compaction	Avoid manure applications in early spring or whenever soil is too wet.
	Time Available for Manure Application	Grazing and forage operations allow applications throughout the year as needed.
	Odors	Keeping manure cleaned out of the barn minimizes odors in the barn. There are more odors if frequent manure spreading and surface applications are necessary. Increasing storage and injecting liquid manure will help to reduce odors.
	Air Quality	Keeping manure cleaned out of the freestall barns minimizes odors in the barn. Maintaining litter quality with the housekeeper machine and providing adequate litter helps to keep birds healthy and also reduces odors. Stir fans and ridge vents also help to improve air quality inside barns.
	Biosecurity	Has a Bio-security plan and is a good location for the operation. Feed trucks and proximity of new poultry barns may be a risk. Restricted entry signs are posted to help control unnecessary traffic in and out of the farm driveway. Workers should not visit other farms on same day and wear clean clothes and boots to the farm.

Other Concerns:

Air quality is another important resource to maintain. Feed management, manure storage and handling methods are planned that will help to minimize dust and odors generated by this operation. Forage quality management for this operation is also an important concern to keep the cattle doing well grazing on pastures and for hay.

Further information can be found in: Section 2, “Feed Management”; Section 4, Nutrient Management for additional information about reducing risk of nutrients and pathogens to water resources; Section 5, “Air Quality” and also in Section 10, “References”.

Clean Water Diversions

Clean water is being diverted away from possible contamination with manure or feed. All contaminated water will be collected and placed into one of the waste storage ponds, hauled directly to the field or diverted into filter strips that have been installed to absorb excess nutrients.

Animal Contact with surface water

Fences have been constructed to minimize any contact by the livestock with surface water. Where ponds may be utilized as a source of water for livestock, access will be limited.

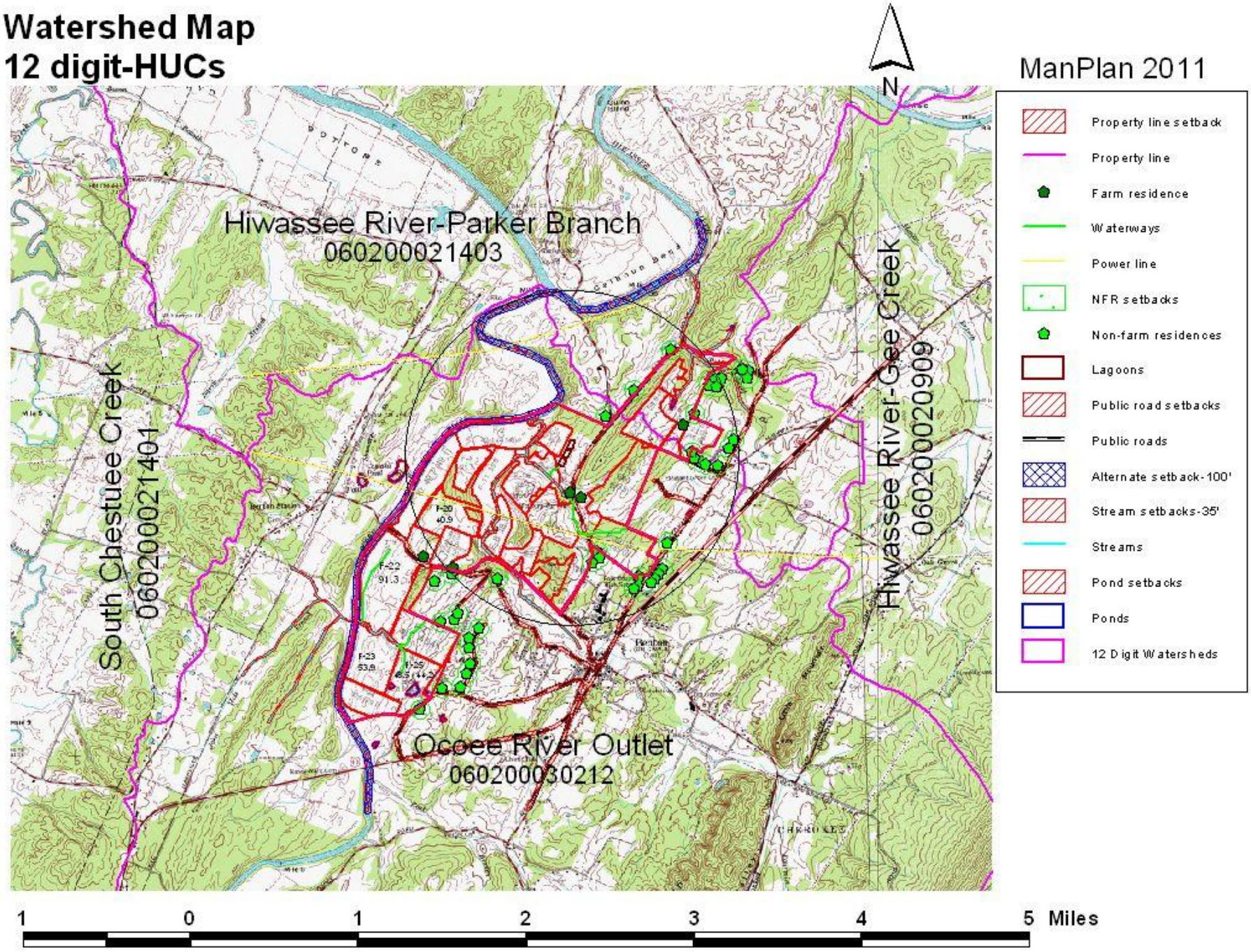
Manure Transfer - Spillage

All areas of manure transfer shall be maintained to immediately clean up any spillage. If necessary and practicable, treatment options such as concrete pads, curbs, and bump walls shall be installed adjacent to manure storage and load-out areas to facilitate proper cleanup.

Manure Transfer – Road

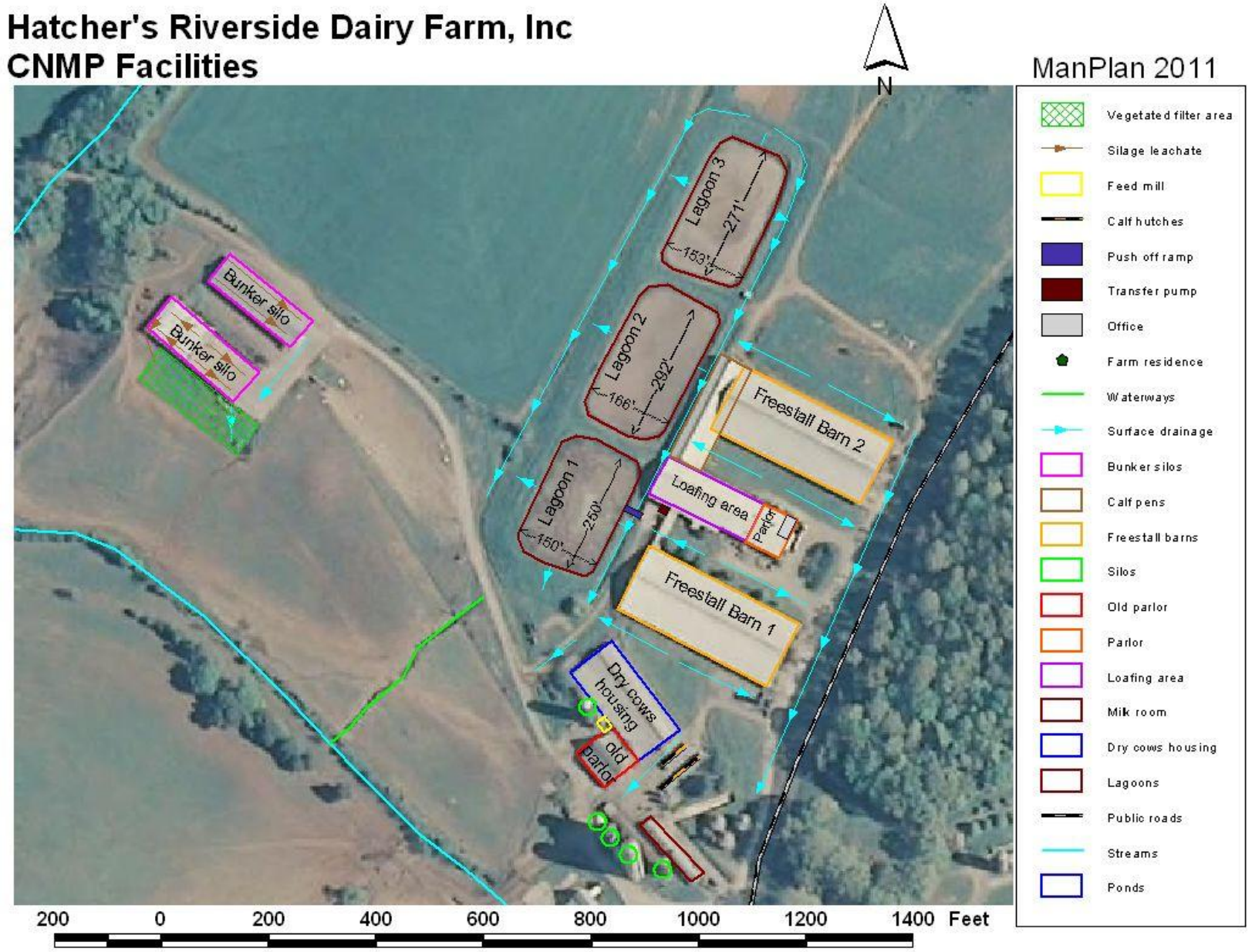
Manure transport units will be maintained in good condition. Manure will not be allowed to spill on roadways, or other unauthorized areas. Sealed truck bodies, canvas covers, wetting down dry material and not overloading spreaders are some of the methods that can be used to prevent spilling. Additionally, cleaning of the transport and application units will be done in a manner that does not allow nutrient loading that would be detrimental to soil, air, plant, water or animal recourses.

Watershed Map
12 digit-HUCs

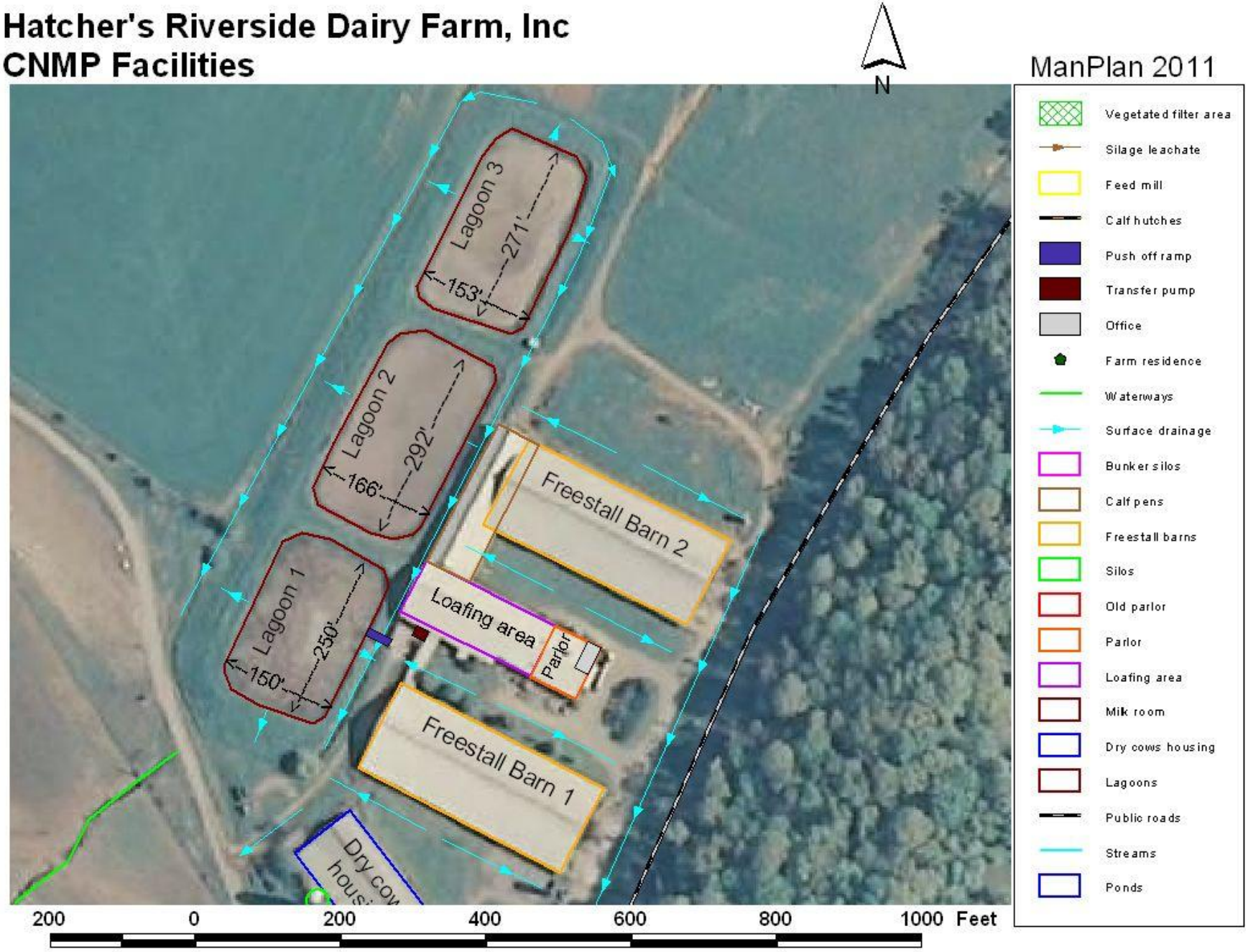


Section 2. Manure and Wastewater Handling and Storage

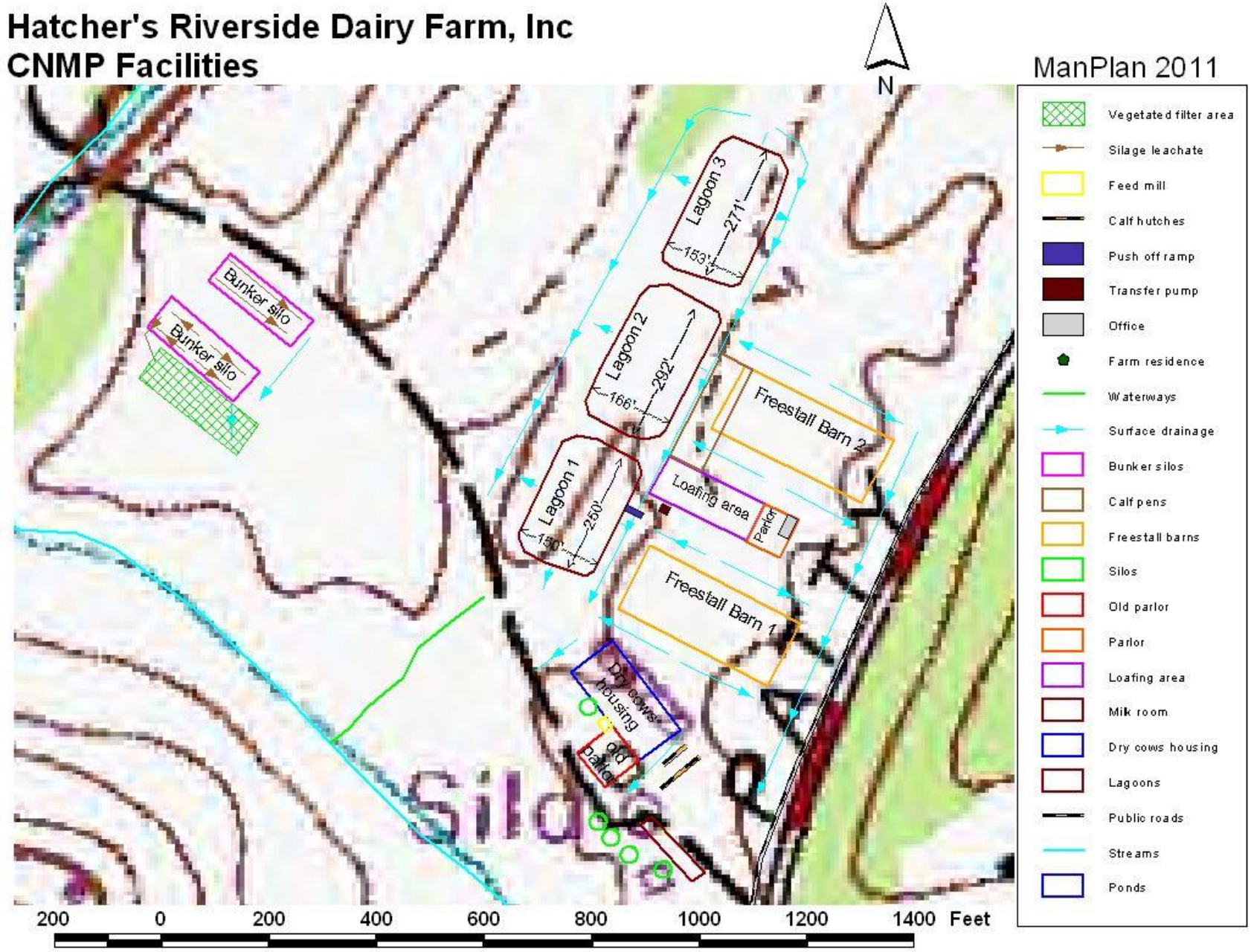
2.1. Map(s) of Production Area



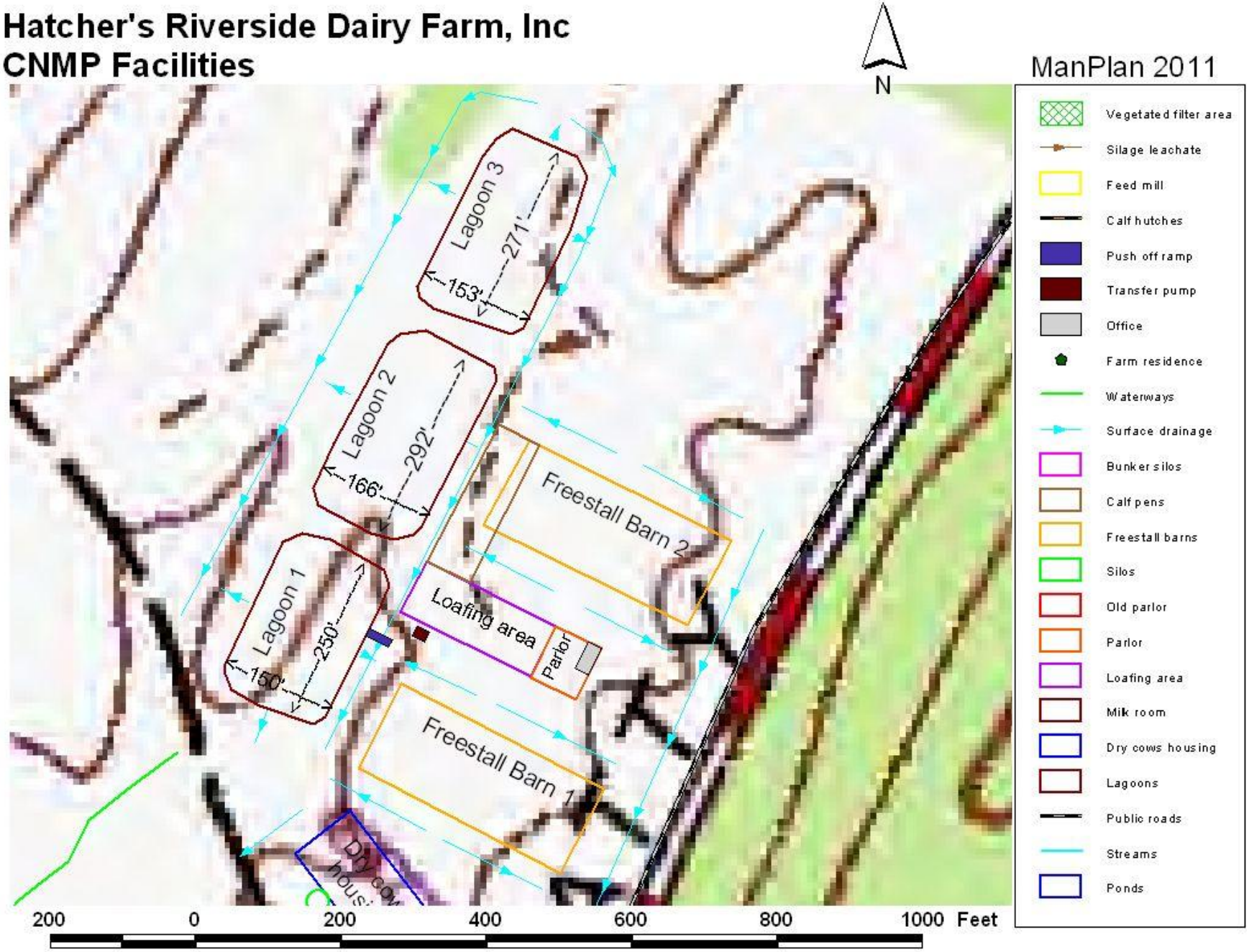
Hatcher's Riverside Dairy Farm, Inc
CNMP Facilities



2.2. Production Area Topographical Map



Hatcher's Riverside Dairy Farm, Inc
CNMP Facilities



2.1 Animal and Manure Resources

Total manure produced estimates were made using the Animal Waste Management program and AWM reports are included in this section. Tables 2-3 and 2-4 summarizes animal inventories and manure storage capacities.

Liquid manure:

Agitation is recommended during pumping in the future to remove solids build-up that may occur. The lagoons and storage ponds have greater than 12 months of storage capacity. The primary and secondary lagoons are agitated prior to spreading.

Liquid from the 3rd stage lagoon or storage pond is pumped back to the primary lagoon or secondary lagoon to help with agitation and suspending solids for pumping and removal. This system works well and allows the operation to maximize storage capacity throughout the year. Also if the lagoon system needs to be pumped during the growing season for silage crops, effluent from the 3rd stage lagoon or storage pond may be pumped using irrigation equipment or the dragline system onto pastures or hayfields.

It is estimated that approximately 6,200,000 gallons of liquid manure and pond effluent will be produced annually and applied mostly in the spring and fall.

Solid manure & Compost

It is estimated that approximately **1700 to 1800 tons of solid bedded manure** will be produced annually from barn 20 housing heifers and dry cows and calf pens and hutches. Also solid manure is extracted by the solids separator at the freestall barns prior to entering the lagoon system.

Some of the solid manure may be applied to fields in this NMP with a tandem axle side slinger solids-slurry spreader.

Also much of the solid manure is planned to be transferred off-site. This solid manure and bedded manure may be composted on-site by piling in a composting area and turning occasionally to facilitate the composting process.

NOTE:
Composting the manure results in shrinkage and drying of the manure, thereby reducing volume and tonnage of the manure by up to 50%.

No alternative utilization options are in used at this time although the practice of composting manure could be expanded upon in the future, with possible sales of compost as an additional revenue to the farm.

Benefits of composting include:

1. Composted material is an odorless, fine-textured, low-moisture material.
2. Compost can be an excellent source of organic matter, nitrogen and other nutrients.
3. Nitrogen in compost is stabilized and not as easily available to the crop as nitrogen from the raw material.
4. Availability of phosphorus, potassium, and micronutrients from compost should be similar or higher than manure or other organic residues used for composting.
5. Since compost is fine textured and has less water than the raw material, it can be applied more uniformly and with better control.
6. The composted material also can be stored and applied when convenient.
7. Weed seeds or pathogens that can create problems with application of manure or other organic residues should not be a concern when properly made compost is used.

See additional references for composting in Section 8.

2.3.Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
Lagoon 1	Lagoon	3,180,000 Gal	1,400,000 Gal	829
Lagoon 2	Lagoon	3,870,000 Gal	1,000,000 Gal	1,413
Storage Pond	Holding pond	2,850,000 Gal	3,800,000 Gal	274
Barn 20	Manure pack	800 Tons	1,550 Tons	188
Calf pens	Manure pack	150 Tons	235 Tons	233

2.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
Calf pens	Calf (dairy)	100	150	Jan Early - Dec Late	100	Calf pens
Dry Cows	Dry cow (dairy)	30	1,250	Jan Early - Dec Late	100	Barn 20
Heifers-bred	Breeding heifer (dairy)	85	1,000	Jan Early - Dec Late	100	Barn 20
Freestall-1	Milk cow (dairy)	216	1,300	Jan Early - Dec Late	100	Lagoon 1
Freestall-2	Milk cow (dairy)	264	1,300	Jan Early - Dec Late	100	Lagoon 2
washwater-runoff	Milk cow (dairy)	1	1,300	Jan Early - Dec Late	100	Storage Pond

(1) Number of Animals is the average number of animals that are present in the production facility at any one time
(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

Freestall Barns, feed alley

Freestall barns-sand beds

Push Off Ramp, gutter and First Lagoon.

Second Lagoon

Storage Pond

Traveling Gun, hose reel

Calf hutches

2.5. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Management of Dead Animals

Burial on site is planned mortality management practice following proper procedures.
Burial sites are a minimum of 150 feet from water sources, and in deep suitable soils without a high water table. Ground water shall be at least 5 feet below the burial level.

Alternative mortality management methods are to send to a rendering facility or composting
It is a priority of the operation to handle mortalities promptly, removing them from the facilities as soon as possible after discovery and placing them mortality storage area.

Finished compost may be applied to the fields in this NMP. Compost shall be analyzed for nutrients at least annually for total Nitrogen (N), Ammonia (NH3), phosphates, (P2O5) and potassium oxide (K2O). A copy of compost analysis shall be provided to the recipient for determining proper agronomic rates for land applications. Records of applications and transfers of compost shall be kept as part of the nutrient management plan. Additional discussion of contingency planning for proper animal disposal in case of catastrophic deaths and can be found in Section 3 under the Emergency Action Plan.

Waste Storage Closure Plan

If livestock productions ceases at this location, the facilities shall be cleaned up to insure all remaining nutrient sources are removed. Closure will meet or exceed all USDA-NRCS practice standards applicable to closing a waste storage facility, including “Closure of Waste Impoundments (360). All manure and nutrients and waste water shall be removed and applied to available cropland following agronomic rates following USDA-NRCS nutrient management and waste utilization standards and specifications.
(See Section 10 references.)

2.6. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location

(None)

2.7. Planned Manure Imports onto the Farm

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location

(None)

2.8. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination

(None)

Insert AWM Reports Here:

MMP Input Data from AWM for: Riverside Dairy Farm Inc

Assisted by: ***ManPlan Inc***

Average Annual Manure Production Stored (for MMP "Analysis" tab)

Facility	Manure		Bedding		Wash Water	Flush Water	Runoff and Extr Precip	Rainfall	Annual Throughput Volume w/o 25Yr Rainfall and Runoff	
	Tons	Gallons	Tons	Gallons	Gallons	Gallons	Gallons	Gallons	Tons	Gallons
Dry Stack (Covered) #1	1532	NA	9.2	NA	NA	NA	NA	NA	**1541.2**	**NA**
Dry Stack (Covered) #2	214	NA	18.3	NA	NA	NA	NA	NA	**232.3**	**NA**
Anaerobic Lagoon #1	NA	244612	NA	18260	219589	0	215947.6	701474	**NA**	**1399882.6**
Anaerobic Lagoon #2	NA	149477	NA	9116	0	0	0	844043	**NA**	**1002636**
Storage Pond #1	NA	3074962	NA	7830	0	0	0	713891	**NA**	**3796683**
Annual Total	1,746	3,469,051	28	35,206	219,589	0	215,948	2,259,408	**1,774**	**6,199,202**

Spreadable or Pumpable Capacity (for MMP "Storage" tab)

Facility	Manure		Bedding		Wash Water	Flush Water	Runoff & Extrn Precip	Rainfall	Design Storage Period	Design Volume w/o 25Yr Rainfall and Runoff	
	Tons	Gallons	Tons	Gallons	Gallons	Gallons	Gallons	Gallons	Months	Tons	Gallons
Dry Stack (Covered) #1	770	NA	4.6	NA	NA	NA	NA	NA	6	**774.6**	**NA**
Dry Stack (Covered) #2	71.9	NA	6.1	NA	NA	NA	NA	NA	4	**78**	**NA**
Anaerobic Lagoon #1	NA	101589	NA	7584	91197	0	200902	485377	5	**NA**	**886649**
Anaerobic Lagoon #2	NA	99659	NA	6078	0	0	0	740639	8	**NA**	**846376**

Storage Pond #1	NA	2049970	NA	5220	0	0	0	629524	8	**NA**	**2684714**

Animal Production Data

Animal	Type of Animal	Number	Weight in Lb	Manure Produced per Animal Unit in CF/Day	Total Manure Produced in CF/Day	Annual Manure Produced in CF	Annual Manure Produced in Gal
Calf (330 lb)	Dairy	100	150	1.30	19.50	7,137	53,385
Dry Cow	Dairy	30	1250	0.84	31.50	11,529	86,237
Heifer (970 lb)	Dairy	85	1000	0.90	76.50	27,999	209,433
Milker(125lb Milk)	Dairy	480	1300	1.80	1123.20	411,091	3,074,962
Totals		695	N/A	N/A	1250.70	457,756	3,424,016

Annual Production vs Storage

Manure Stored			Manure Not Captured		
(CF)	(Gal)	(Lbs)	(CF)	(Gal)	(Lbs)
521971	3904343	31318260	-64215	-480328	-3852900

Animal Waste Management Plan Report

prepared for Riverside Dairy Farm Inc

Designed By: ManPlan Inc
Date: 8/30/2011
Checked By:
Date:

Farm Information

# of Operating Periods: 1 **State:** TN **Data Source:** NRCS-2008

Operating Period: January - December

Climate Data

County: Polk

Station: COPPERHILL TN2024

25 Yr - 24 Hr Storm Event: 6.33 inches

Lagoon Loadings:

Rational Design Method:

Barth KVAL: 0

Load Rate for Odor, OCV: 0 lbs VS/cu. ft/day

LRV Max: 0.00625 lbs VS/cu. ft/day

NRCS Design Method:

Anaerobic Load Rate: 20 lbs VS/1000 cu. ft/day

Month	Prec. (in)	Evap. (in)
January	5.78	1.50
February	5.47	1.80
March	6.43	2.90
April	4.94	4.00
May	5.00	4.80
June	4.56	5.50
July	5.40	5.60
August	4.78	5.20
September	4.52	4.30
October	3.28	2.90
November	4.99	1.70
December	5.00	1.70
Total	60.15	41.90

	Dry Cow	100
	Heifer (970 lb)	100

Additions Data

Waste Water VS Loading: 12.9

Operating Period: 1

Location	Wash Water	Flush Water	Bedding	Amount
	gal/day	gal/day		lbs/day
Parlor Wastewater	600.00	0.00		0.00
Calf pens	0.00	0.00	Sawdust - Shavings	100.00
Dry Cows	0.00	0.00	Sawdust - Shavings	50.00
Freestall 2	0.00	0.00	Sand	500.00
Freestall 1	0.00	0.00	Sand	500.00
Heifer Barn	0.00	0.00	Sawdust - Shavings	50.00

Runoff Data

Runoff Volume Method: Calculate Monthly Runoff Volumes with AWM

Pervious Watershed Area: 0 acres

Pervious Curve Number Storm 90

Pervious Curve Number Monthly 90 (1 day), 77 (30 day)

Impervious Area: 6500 sq. ft

25 Year Pervious: 0.00 cu. ft

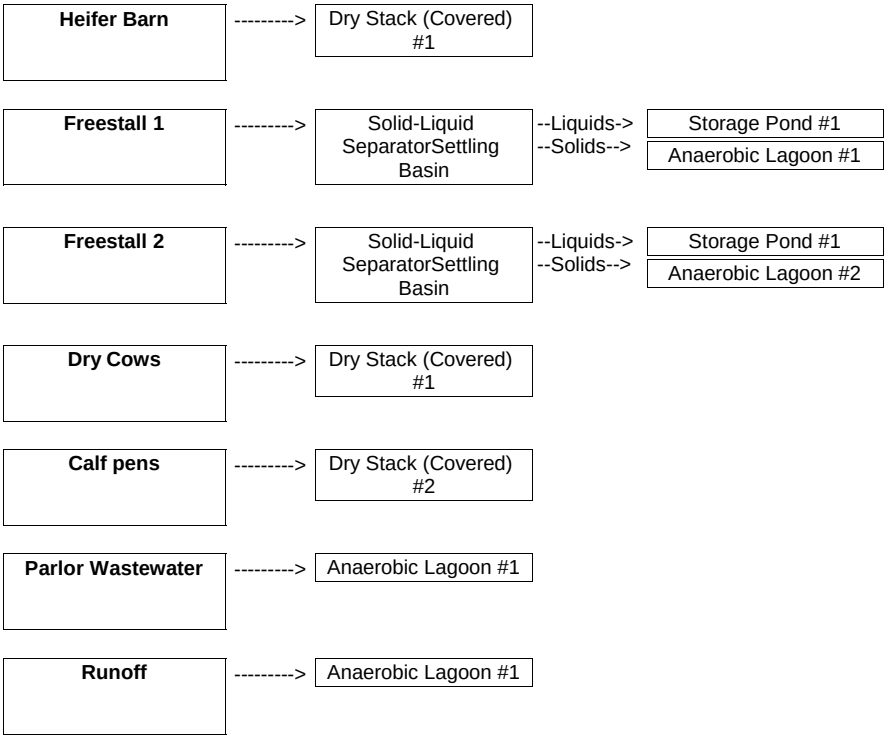
25 Year Impervious: 3300.00 cu. ft

25 Year Total: 3300.00 cu. ft

Runoff Volumes (1000 cu. ft.)

Month	Pervious	Impervious	Month Total
January	0.00	2.82	2.82
February	0.00	2.65	2.65
March	0.00	3.17	3.17
April	0.00	2.37	2.37
May	0.00	2.40	2.40
June	0.00	2.16	2.16
July	0.00	2.61	2.61
August	0.00	2.28	2.28
September	0.00	2.14	2.14
October	0.00	1.48	1.48
November	0.00	2.39	2.39
December	0.00	2.40	2.40
Total	0.00	28.88	28.88

Management Train



Facility Volume Data

Operating Period 1

Facility	Manure	Wash Water	Flush Water	Bedding	Total Vol
Storage Pond #1	1123.20	0.00	0.00	2.86	1126.06
Anaerobic Lagoon #2	54.60	0.00	0.00	3.33	57.93
Anaerobic Lagoon #1	89.35	80.21	0.00	6.67	176.22
Dry Stack (Covered) #2	19.50	0.00	0.00	6.35	25.85
Dry Stack (Covered) #1	139.50	0.00	0.00	9.52	149.02

Waste Facilities

Anaerobic Lagoon #1

Max. Storage Vol. Method: Storage Volume

Storage Months: 5 months **Critical Months:** Oct - May

Design Dimensions

Shape: Rectangle
Sideslope: 1.5:1
Storage Depth: 16.0 ft;
Freeboard: 2.0 ft

Top Length: 250.0 ft
Bottom Length: 196.0 ft
Top Width: 150.0 ft
Bottom Width: 96.0 ft
Bot Dimensions 96.0 x 196.0 ft
TopDimensions: 150.0 x 250.0 ft

Permament Additional Storage

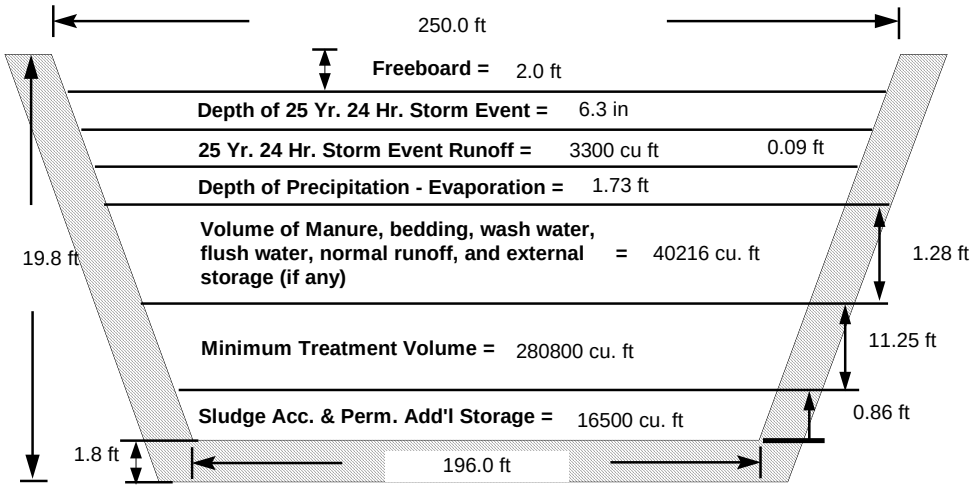
Design Quantities

25Yr24Hr Storm Depth: 6.3 in
Prec Minus Evap Depth: 1.73 ft
Volume Required (Wastes): 40216 cu. ft
Permanent Addl Storage: 16500 cu. ft
Min. Treatment Volume: 280800 cu. ft
Sludge _Perm Stor Vol: 16500 cu. ft
Sludge Accum. Period: 5 year(s)
Barth Method: No

Soil Liner

Liner Depth: 1.8 ft
Liquid Depth: 14.8 ft
9

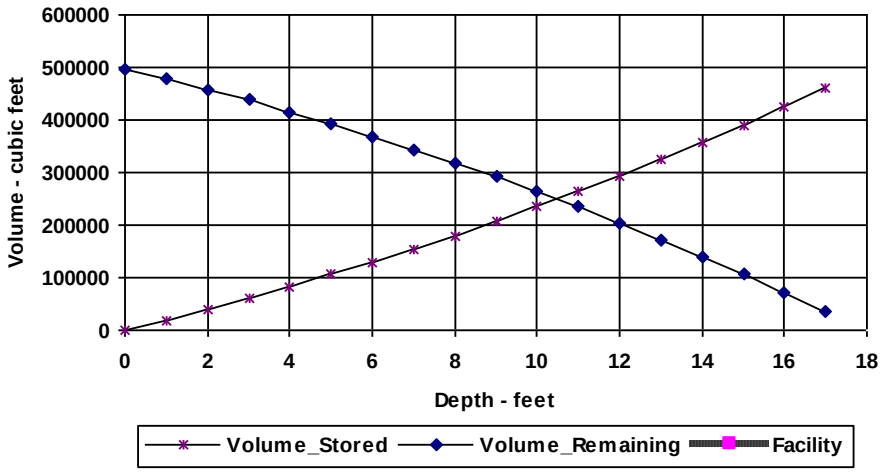
Permeability: .00011 ft/day
Specific Discharge: .001 ft3/ft2/day



Water Budget (1000 cu. ft.)

Month	Runoff	Withdrawal	Waste	Prec - Evap	Ext Prec	CumStorageVol
January	2.82	☐	5.46	14.69	0.00	22.97
February	2.65	☐	5.11	13.05	0.00	20.81
March	3.17	☐	5.46	13.57	0.00	22.21
April	2.37	☐	5.29	6.45	0.00	14.10
May	2.40	☐	5.46	4.83	0.00	12.70
June	2.16	☐	5.29	1.89	0.00	9.33
July	2.61	☐	5.46	4.29	0.00	12.36
August	2.28	☐	5.46	3.25	0.00	10.99
September	2.14	☐	5.29	4.46	0.00	11.89
October	1.48	☐	5.46	3.73	0.00	10.67
November	2.39	☐	5.29	11.77	0.00	19.45
December	2.40	☐	5.46	11.80	0.00	19.67

Stage Storage Curve



Anaerobic Lagoon #2

Max. Storage Vol. Method: Storage Volume

Storage Months: 8 months **Critical Months:** Oct - May

Design Dimensions

Shape: Rectangle
Sideslope: 1.5:1
Storage Depth: 14.0 ft;
Freeboard: 2.0 ft

Permament Additional Storage

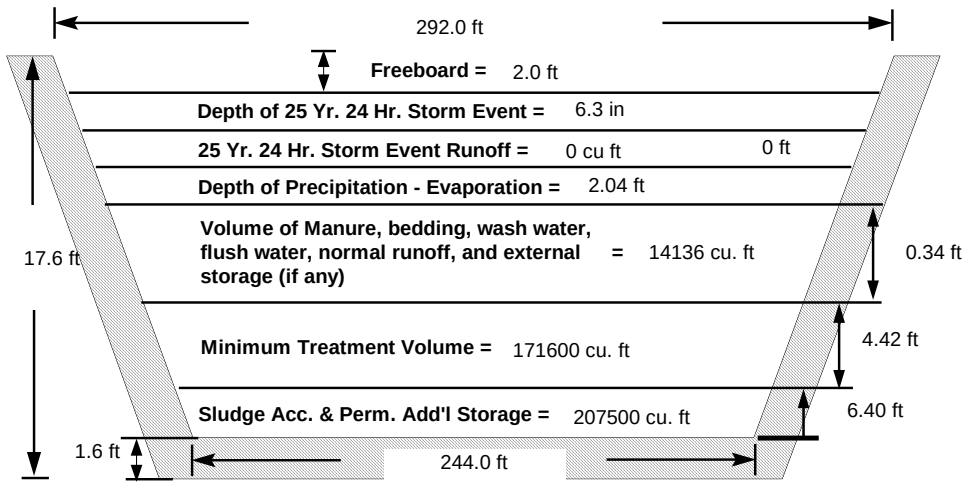
Top Length: 292.0 ft
Bottom Length: 244.0 ft
Top Width: 166.0 ft
Bottom Width: 118.0 ft
Bot Dimensions 118.0 x 244.0 ft
TopDimensions: 166.0 x 292.0 ft

Design Quantities

25Yr24Hr Storm Depth: 6.3 in
Prec Minus Evap Depth: 2.04 ft
Volume Required (Wastes): 14136 cu. ft
Permanent Addl Storage: 207500 cu. ft
Min. Treatment Volume: 171600 cu. ft
Sludge _Perm Stor Vol: 207500 cu. ft
Sludge Accum. Period: 5 year(s)
Barth Method: No

Soil Liner

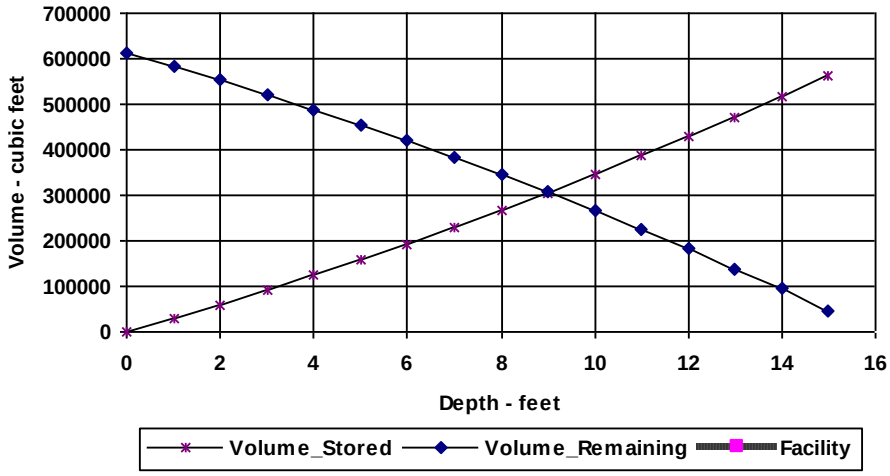
Liner Depth: 1.6 ft
Liquid Depth: 12.7 ft 9
Permeability: .00011 ft/day
Specific Discharge: .001 ft3/ft2/day



Water Budget (1000 cu. ft.)

Month	Runoff	Withdrawal	Waste	Prec - Evap	Ext Prec	CumStorageVol
January	0	☐	1.80	18.69	0.00	20.49
February	0	☐	1.68	16.51	0.00	18.19
March	0	☐	1.80	16.97	0.00	18.76
April	0	☐	1.74	7.53	0.00	9.27
May	0	☐	1.80	5.29	0.00	7.08
June	0	☐	1.74	1.33	0.00	3.07
July	0	☐	1.80	4.42	0.00	6.21
August	0	☐	1.80	3.16	0.00	4.95
September	0	☐	1.74	4.90	0.00	6.64
October	0	☐	1.80	4.24	0.00	6.04
November	0	☐	1.74	14.88	0.00	16.62
December	0	☐	1.80	14.92	0.00	16.71

Stage Storage Curve



Dry Stack (Covered) #1

Max. Storage Vol. Method: Storage Volume

Storage Months: 6 months **Critical Months:** Oct - May

Design Dimensions

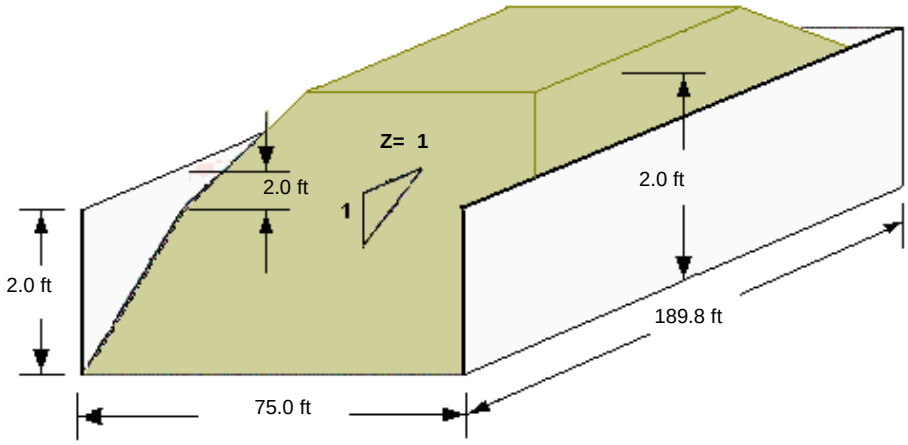
Shape:	Rectangle	**Top Length:**	185.8 ft
Sideslope:	1:1	**Bottom Length:**	189.8 ft
Storage Depth:	2.0 ft	**Top Width:**	71.0 ft
Freeboard:	2.0 ft	**Bottom Width:**	75.0 ft
Wall Height:	2.0 ft	**Bot Dimensions**	75.0 x 189.8 ft
		TopDimensions:	71.0 x 185.8 ft

Design Quantities

25Yr24Hr Storm Depth:

Prec Minus Evap Depth:

Volume Required (Wastes): 27420 cu. ft



Water Budget (1000 cu. ft.)

Month	Runoff	Withdrawal	Waste	Prec - Evap	Ext Prec	CumStorageVol
January	0	☐	4.62	4.70	0.00	4.62
February	0	☐	4.32	4.03	0.00	4.32
March	0	☐	4.62	3.88	0.00	4.62
April	0	☐	4.47	1.03	0.00	4.47
May	0	☐	4.62	0.21	0.00	4.62
June	0	☐	4.47	-1.04	0.00	4.47
July	0	☐	4.62	-0.23	0.00	4.62
August	0	☐	4.62	-0.47	0.00	4.62
September	0	☐	4.47	0.24	0.00	4.47
October	0	☐	4.62	0.41	0.00	4.62
November	0	☐	4.47	3.61	0.00	4.47
December	0	☐	4.62	3.63	0.00	4.62

Dry Stack (Covered) #2

Max. Storage Vol. Method: Storage Volume

Storage Months: 4 months **Critical Months:** Oct - May

Design Dimensions

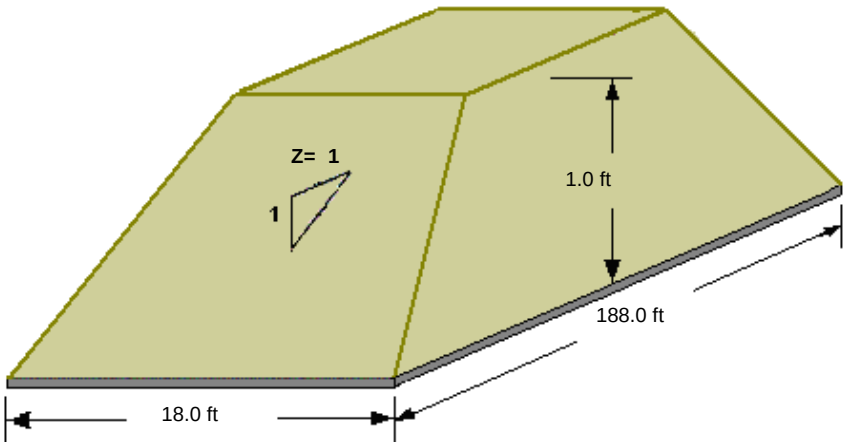
Shape:	Rectangle	**Top Length:**	186.0 ft
Sideslope:	1:1	**Bottom Length:**	188.0 ft
Storage Depth:	1.0 ft	**Top Width:**	16.0 ft
Freeboard:	0.0 ft	**Bottom Width:**	18.0 ft
Wall Height:	0.0 ft	**Bot Dimensions**	18.0 x 188.0 ft
		TopDimensions:	16.0 x 186.0 ft

Design Quantities

25Yr24Hr Storm Depth:

Prec Minus Evap Depth:

Volume Required (Wastes): 3179 cu. ft



Water Budget (1000 cu. ft.)

Month	Runoff	Withdrawal	Waste	Prec - Evap	Ext Prec	CumStorageVol
January	0	☐	0.80	1.04	0.00	0.80
February	0	☐	0.75	0.88	0.00	0.75
March	0	☐	0.80	0.83	0.00	0.80
April	0	☐	0.78	0.17	0.00	0.78
May	0	☐	0.80	-0.03	0.00	0.80
June	0	☐	0.78	-0.33	0.00	0.78
July	0	☐	0.80	-0.14	0.00	0.80
August	0	☐	0.80	-0.19	0.00	0.80
September	0	☐	0.78	-0.02	0.00	0.78
October	0	☐	0.80	0.04	0.00	0.80
November	0	☐	0.78	0.79	0.00	0.78
December	0	☐	0.80	0.79	0.00	0.80

Storage Pond #1

Max. Storage Vol. Method: Storage Volume

Storage Months: 8 months **Critical Months:** Oct - May

Design Dimensions

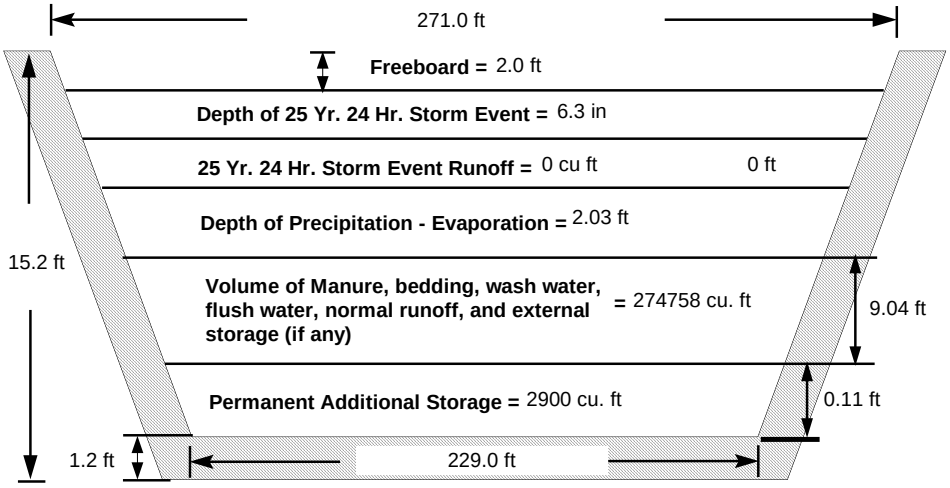
Shape:	Rectangle	**Top Length:**	271.0 ft
Sideslope:	1.5:1	**Bottom Length:**	229.0 ft
Storage Depth:	12.0 ft;	**Top Width:**	153.0 ft
Freeboard:	2.0 ft	**Bottom Width:**	111.0 ft
		Bot Dimensions	111.0 x 229.0 ft
Permament Additional Storage	0.11 ft	**TopDimensions:**	153.0 x 271.0 ft

Design Quantities

25Yr24Hr Storm Depth:	6.3 in
Prec Minus Evap Depth:	2.03 ft
Volume Required (Wastes):	274758 cu. ft

Soil Liner

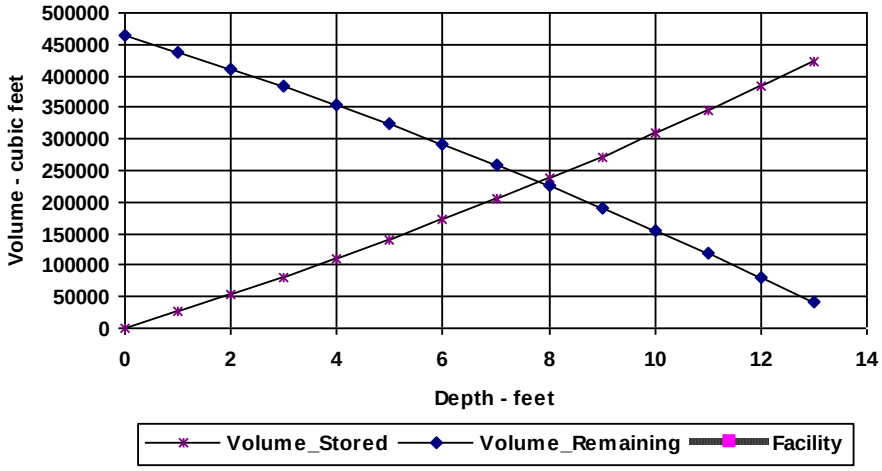
Liner Depth:	1.2 ft	**Permeability:**	.0001 ft/day
Liquid Depth:	10.7 ft 8	**Specific Discharge:**	.001 ft3/ft2/day



Water Budget (1000 cu. ft.)

Month	Runoff	Withdrawal	Waste	Prec - Evap	Ext Prec	CumStorageVol
January	0	☐	34.91	15.95	0.00	50.86
February	0	☐	32.66	14.07	0.00	46.73
March	0	☐	34.91	14.44	0.00	49.35
April	0	☐	33.78	6.34	0.00	40.12
May	0	☐	34.91	4.40	0.00	39.31
June	0	☐	33.78	1.00	0.00	34.79
July	0	☐	34.91	3.64	0.00	38.55
August	0	☐	34.91	2.57	0.00	37.48
September	0	☐	33.78	4.08	0.00	37.87
October	0	☐	34.91	3.55	0.00	38.46
November	0	☐	33.78	12.68	0.00	46.46
December	0	☐	34.91	12.72	0.00	47.63

Stage Storage Curve

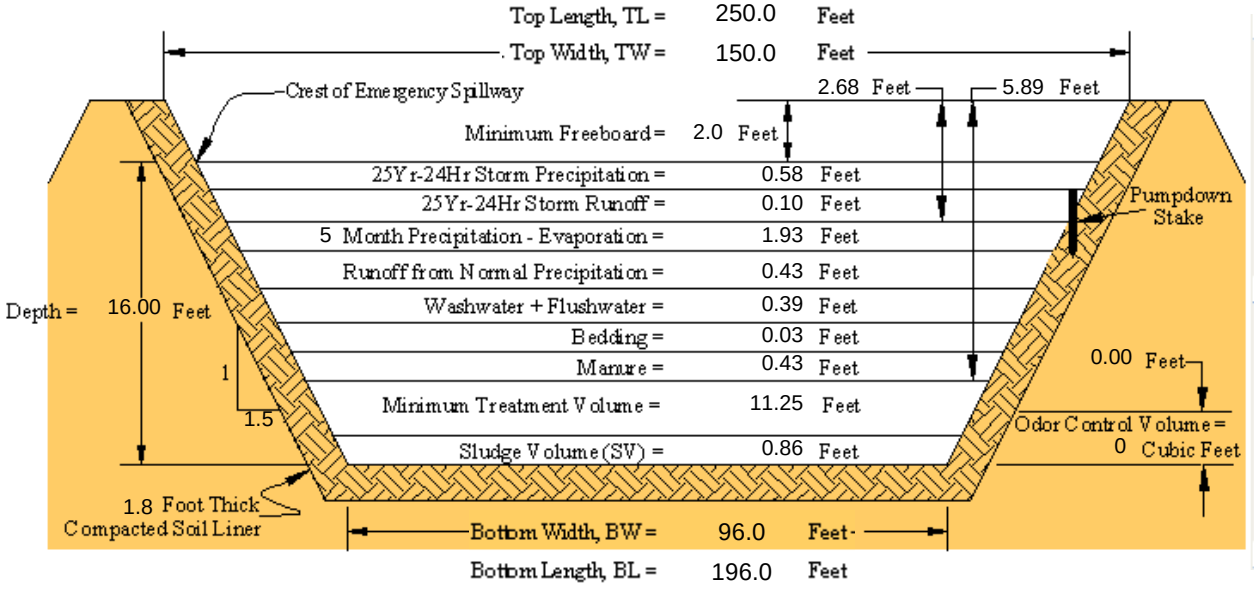


AWM
Anaerobic Lagoon Data for: Riverside Dairy Farm Inc

Designed by: ManPlan Inc

Facility	**Rectangular Anaerobic Lagoon #1**		
Storage Period	5	***Months***	
Manure	13,581	***Cubic Feet***	101,589 ***Gallons***
Bedding	1,014	***Cubic Feet***	7,584 ***Gallons***
FlushWater	0	***Cubic Feet***	0 ***Gallons***
WashWater	12,192	***Cubic Feet***	91,197 ***Gallons***
Runoff from Drainage Area			
Normal Rainfall	13,430	***Cubic Feet***	100,456 ***Gallons***
25Yr-24Hr Storm	3,300	***Cubic Feet***	24,684 ***Gallons***
Rainfall on Pond Surface			
25Yr-24Hr Storm	19,688	***Cubic Feet***	147,263 ***Gallons***
Normal Rainfall minus Evaporation	64,969	***Cubic Feet***	485,964 ***Gallons***
Min Treatment Volume.....	280,800	***Cubic Feet***	2,100,384 ***Gallons***
Permanent Additional Storage	16,500	***Cubic Feet***	123,420 ***Gallons***
Sludge Volume	0	***Cubic Feet***	0 ***Gallons***
Design Operating Volume...	105,185	***Cubic Feet***	786,780 ***Gallons***
Total Storage Volume.....	425,472	***Cubic Feet***	3,182,531 ***Gallons***

Structural Volume	498,096	***Cubic Feet***

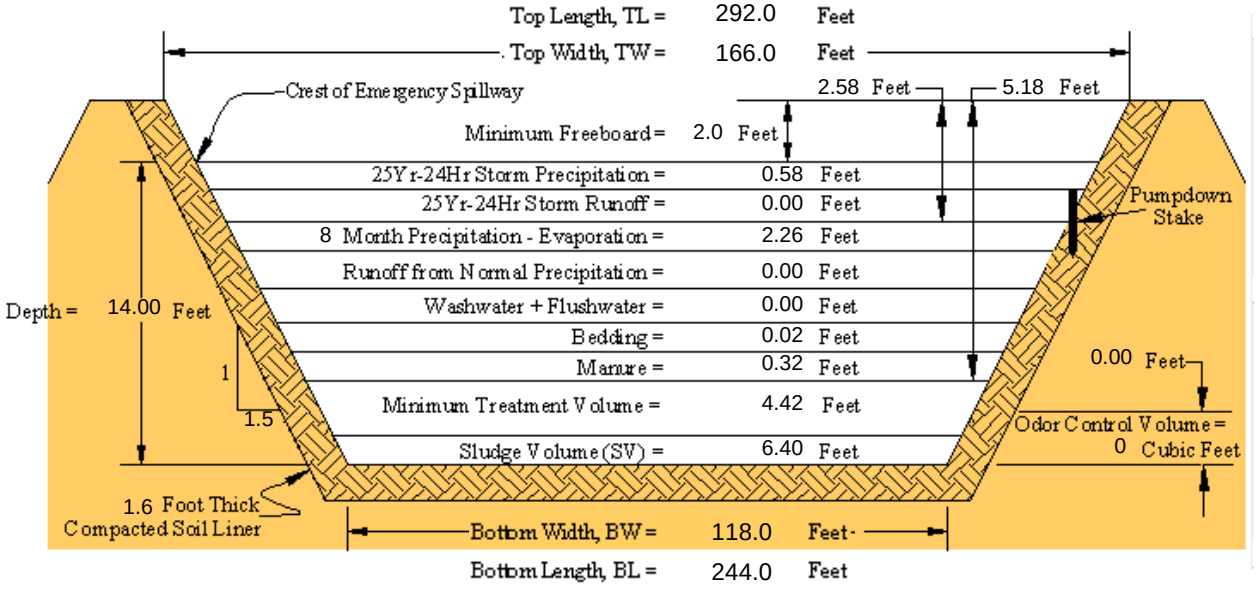


AWM
Anaerobic Lagoon Data for: Riverside Dairy Farm Inc

Designed by: ManPlan Inc

Facility	**Rectangular Anaerobic Lagoon #2**			
Storage Period	8	***Months***		
Manure	13,323	***Cubic Feet***	99,659	***Gallons***
Bedding	813	***Cubic Feet***	6,078	***Gallons***
FlushWater	0	***Cubic Feet***	0	***Gallons***
WashWater	0	***Cubic Feet***	0	***Gallons***
Runoff from Drainage Area				
Normal Rainfall	0	***Cubic Feet***	0	***Gallons***
25Yr-24Hr Storm	0	***Cubic Feet***	0	***Gallons***
Rainfall on Pond Surface				
25Yr-24Hr Storm	25,448	***Cubic Feet***	190,350	***Gallons***
Normal Rainfall minus Evaporation	99,064	***Cubic Feet***	741,000	***Gallons***
Min Treatment Volume.....	171,600	***Cubic Feet***	1,283,568	***Gallons***
Permanent Additional Storage	207,500	***Cubic Feet***	1,552,100	***Gallons***
Sludge Volume	0	***Cubic Feet***	0	***Gallons***
Design Operating Volume...	113,200	***Cubic Feet***	846,737	***Gallons***
Total Storage Volume.....	517,748	***Cubic Feet***	3,872,755	***Gallons***

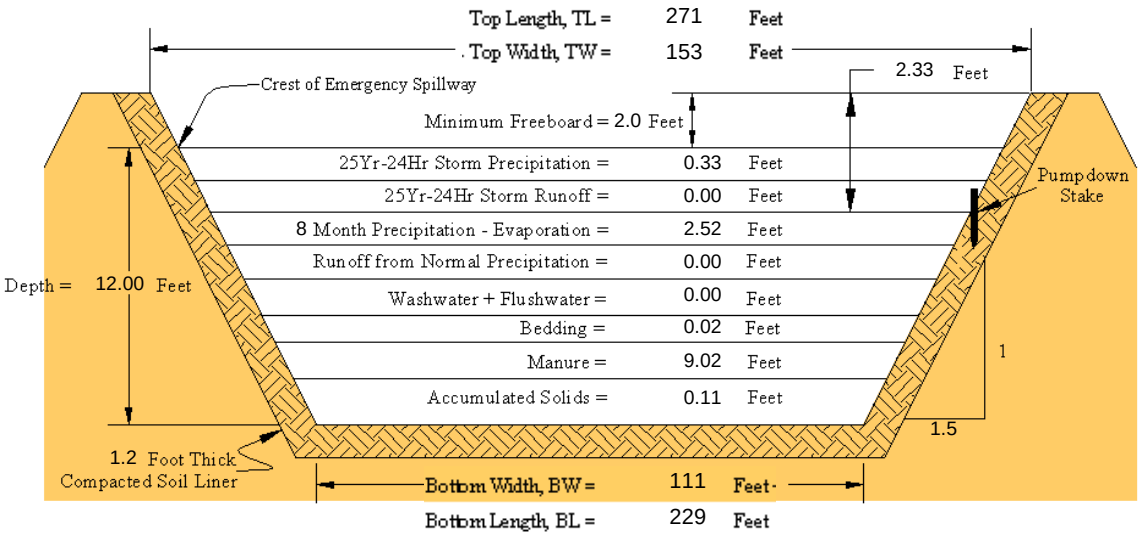
Structural Volume	611,968	***Cubic Feet***



AWM
Waste Storage Pond Data for: Riverside Dairy Farm Inc

Designed by: ManPlan Inc

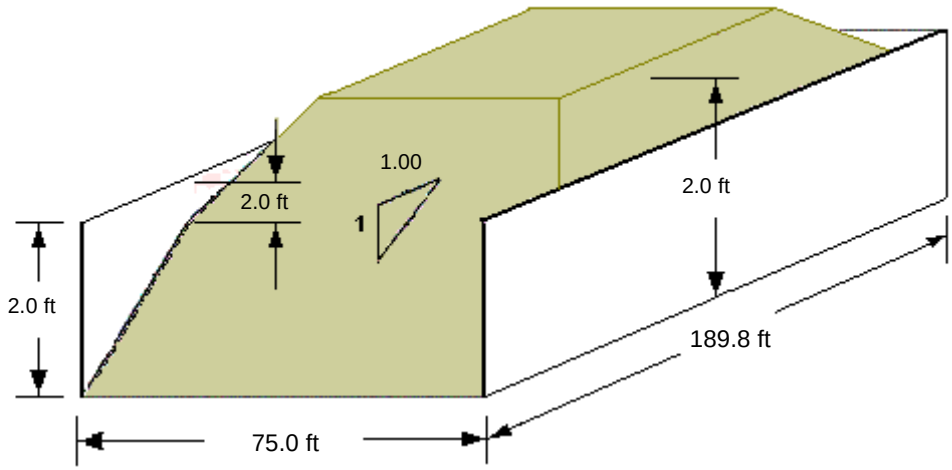
Facility	**Rectangular Storage Pond #1**			
Storage Period	8	***Months***		
Manure & External Effluent	274,060	***Cubic Feet***	2,049,969	***Gallons***
Bedding	698	***Cubic Feet***	5,221	***Gallons***
FlushWater	0	***Cubic Feet***	0	***Gallons***
WashWater	0	***Cubic Feet***	0	***Gallons***
Runoff from Drainage Area				
25Yr-24Hr Storm	0	***Cubic Feet***	0	***Gallons***
Normal Rainfall	0	***Cubic Feet***	0	***Gallons***
Rainfall on Pond Surface				
25Yr-24Hr Storm	21,768	***Cubic Feet***	162,825	***Gallons***
Normal Rainfall minus Evaporation	84,161	***Cubic Feet***	629,524	***Gallons***
Accumulated Solids	2,900	***Cubic Feet***	21,692	***Gallons***
Design Operating Volume ..	358,919	***Cubic Feet***	2,684,714	***Gallons***
Total Storage Volume	380,687	***Cubic Feet***	2,847,539	***Gallons***
Ramp Volume (if applicable)	0	***Cubic Feet***		
Structural Volume (includes effects of ramp if present)	464,058	***Cubic Feet***		



AWM
Solids Stacking Facility Data for: Riverside Dairy Farm In

Designed by: ManPlan Inc

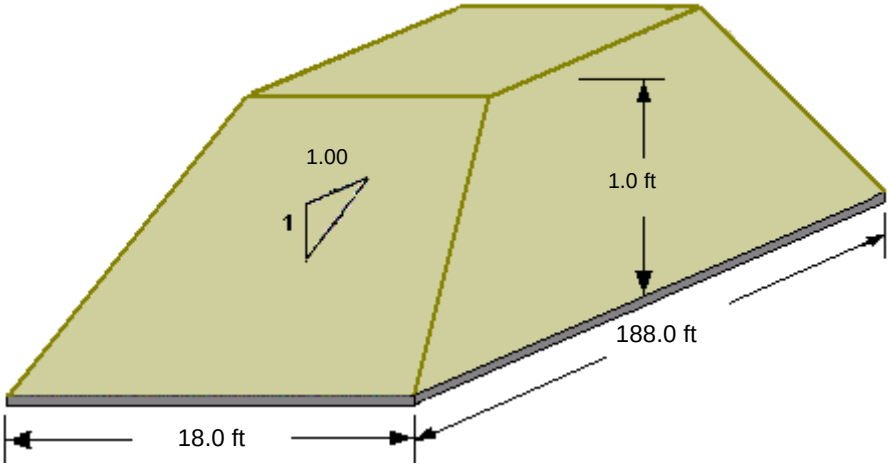
Facility	**Dry Stack (Covered) #1**	
Storage Period	6	***Months***
Manure	25,668	***Cubic Feet***
Bedding	1,752	***Cubic Feet***
Total Volume to Store	27,420	***Cubic Feet***
Total Volume of Facility	55,741	***Cubic Feet***



AWM
Solids Stacking Facility Data for: Riverside Dairy Farm In

Designed by: ManPlan Inc

Facility	**Dry Stack (Covered) #2**	
Storage Period	4	***Months***
Manure	2,398	***Cubic Feet***
Bedding	781	***Cubic Feet***
Total Volume to Store	3,179	***Cubic Feet***
Total Volume of Facility	3,179	***Cubic Feet***



Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

Farm Information

Farm Name	**Hatcher's Riverside Dairy Farm, Inc**
Address	**Farm Address: 435 Patty Road Benton, TN 37307** **Mailing address: 419 Patty Road Benton, TN 37307**
Farm Phone	**Warren Hatcher: 423-338-2376 or Farm: 423-388-2780** **Don Hatcher: 423 715-6764**
Permit #	*TNA000244*
Directions to Farm	Main St 1. Head **northwest** on **Main St** toward **Ward St** — go 420 ft, total 420 ft 2. Take the 2nd right onto **Town Creek Rd** — go 0.1 mi, total 0.2 mi 3. Take the 1st left to stay on **Town Creek Rd** — go 0.1 mi, total 0.3 mi 4. Take the 1st left to stay on **Town Creek Rd** — go 0.1 mi, total 0.5 mi 5. Take the 2nd right onto **Patty Rd** — go 0.8 mi, total 1.2 mi Destination will be on the left About 2 mins 435 Patty Rd, Benton, TN 37307

Emergency Contacts

	Name	Emergency Phone	Cell Phone
Farm Owner	**Farm Number Warren Hatcher Don Hatcher**	**423-388-2780 423 338-2376 423 715-6764**	**423-309-8108**
Farm Manager			
Polk County Sheriffs Office	**Bill Davis**	**423-338-8215**	**911**
Fire Department	**Cleveland Fire Department**	**911 423-559-3340**	
Ambulance	**Athens**	**911 423-745-3336**	
Excavation Equipment: Backhoe, Dozer	**Hooper & Son Excavation**	**423-780-9290**	

Agency Contacts

Contact Agency	Person	Day Phone	Emergency Number
TWRA - Tenn. Wildlife Resources Agency			**(800) 890 TENN or (800) 890-8366**
TDEC-Environmental Assistance Center			**(888) 891-8332**
Polk County Sheriffs Office	**Bill Davis**	**423-338-8215**	**911**
State Veterinarian: (If mortality issues)	**Dr. Ronald B. Wilson, Nashville, TN**	**(615) 837-5120**	
UT Extension, Benton, TN		**423-338-4502**	

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

3.2. Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.

WISCONSIN VETERINARY DIAGNOSTIC LABORATORY

BIOSECURITY FOR DAIRY FARMS

Introduction

Outbreaks of infectious disease have shown that it pays to be conscientious about preventing and controlling infectious disease on livestock operations. This concept is known as biosecurity. Biosecurity refers to management practices that reduce the chances infectious diseases will be carried onto the farm by animals or people. Biosecurity also reduces the spread of infectious disease on farms.

Animal + infectious agent + environment = disease

All infectious diseases result from the interplay between the animal and its ability to resist disease (its immunity), an infectious agent (bacteria, viruses and parasites) and the environment. For example, producers can prevent some diseases by using vaccination to increase immunity. Producers can also prevent disease by keeping infectious agents from coming onto their farm. If an infectious agent is already on the farm, producers can try to eradicate it or control its spread.

Strategic vaccination

Vaccination is an essential component of disease prevention. Setting up a well planned strategic vaccination program means determining what diseases to vaccinate against, identifying who will most benefit from vaccination and finding out when they will most need the protection that vaccines provide. For more details on planning a vaccination program, please contact your herd veterinarian.

Preventing the introduction and spread of infectious diseases

Note: Every animal that dies unexpectedly on your farm should be examined by your herd veterinarian to determine the cause of death.

1. Keeping a closed herd

Keeping a closed herd is one way to protect cattle from infectious disease. In a closed herd, no cattle enter the farm either by purchase or loan and resident cattle do not make contact with any cattle from other farms. A herd is **not** closed if

- Cattle are purchased or boarded;
- Cattle return to the herd after gong to shows, community pastures or performance evaluation centers;
- Cattle use a pasture that shares a fence line with cattle in pasture on a different farm;
- Bulls are purchased, borrowed or loaned; and
- Cattle from the herd are transported by someone else or in someone else's vehicle

2. Purchasing new cattle

It is important to plan the introduction of animals to minimize the risk that an infectious disease will be brought in at the same time. Three factors are important in reducing the risk of infectious diseases when purchasing new cattle.

- The protection you have given your herd by proper vaccination
- The source of purchased cattle, including how they are transported to the farm
- The method you will use to actually introduce the new cattle to the rest of the herd

3. Resident cattle

Make certain your own cattle are properly vaccinated according to the manufacturer's and your herd veterinarian's recommendations before bringing new cattle into the herd.

4. The source of purchased cattle

- Bring in only animals from herds where you know the health status.
- Bring in only animals from herds with a known effective vaccination program. Get specific information about the vaccination history such as when vaccine was used and when it was given. If killed vaccines were used, make sure that a primary series (two doses given a few weeks apart) was given.
- Avoid purchasing animals from unknown sources or that have been mixed with other cattle
- Buy heifers when purchasing a group of cattle. Because they aren't milking, heifers are easier to quarantine.
- Ask for health information about purchased cattle. Ask for the DHIA somatic cell count information on milking cows. Test the bulk tank for contagious mastitis.
- Transport animals in a vehicle that has been cleaned and disinfected before pick up.

5. Introducing new arrivals

- Quarantine new animals for 30 days before allowing contact with animals on-farm.
- Designate your quarantine area. It should be separated from other cattle on your farm. To prevent the spread of respiratory diseases, quarantined cattle should not share the same airspace with resident cattle.
- Quarantined cattle should not share feeders, waterers or equipment with resident cattle.
- Use a medicated foot bath before allowing purchased cattle to enter the herd.
- Prevent the spread of contagious mastitis by milking the new animals last. Sanitize the milking equipment after milking new cattle.
- Check the new animal's temperature every day or at least every other day during the quarantine period. If it develops a fever, have it checked out by your veterinarian.
- Vaccinate cattle while they are in quarantine.
-

6. Test all purchased cattle for infection with

- BVD virus
- Johne's disease
- Mastitis caused by *Staphylococcus aureus, Streptococcus agalactiae* and *Mycoplasma bovis*
- Bovine leukosis (optional)

It can take 1-2 weeks to get test results so collect and submit the samples as soon as the animal arrives.

7. Controlling farm traffic

Infectious diseases can be carried by people and equipment too. If you borrow equipment from other farms, make sure it has been cleaned before using it on your farm. Producers should limit access on the farm to calves and fresh cows since they are most susceptible to infectious disease.

Some steps to reduce the risk of introducing infectious diseases:

- Limit people's access to the barn. This may mean locking the door to the barn.
- Post a warning sign asking visitors to keep out. It helps to provide information on who to contact or a telephone number to call instead of entering the barn.
- Make sure visitors wear clean boots and clothing in the barn. This is important if visitors have already been in other barns. Provide some large size coveralls and boots in the barn for visitors to wear. Disposable plastic boots can be used but they wear out quickly.
- Make sure visitors use a foot bath and clean their boots with a brush and disinfectant **before** entering your barn.
- Have bull calves and other sale animals picked up without allowing the dealer or transporter to enter the barn.
- Have dead animals picked up without allowing the livestock renderer to enter your barn or come in contact with your animals.
- Keep a record of visitors.
- Use your own halters and ropes.

It is difficult to control all traffic on the farm but you can identify the traffic that represents the most risk. These include people who frequently visit other farms and people who have already visited other farms on the day they visit your farm.

Major infectious diseases of cattle in Wisconsin and their primary means of spread

Disease	Major means of spread
Bovine viral diarrhea (BVD)	Direct contact with infected cattle or their body fluids
Contagious mastitis (Staph aureus, Strept. Agalactiae	Contact with infected milk, usually at milking
Mycoplasma bovis	Contact with respiratory carrier or infected milk
Bovine leukosis virus	Contact with blood of infected cattle
IBR, BRSV and PI_3 viruses	Spread through the air
E. coli, rotavirus and coronavirus	Contact with manure from infected cattle
Salmonellosis	Contact with manure from infected cattle
Leptospirosis	Contact with urine from infected carrier cattle
Hairy heel warts	Contact with environment of infected cows
Johne's disease	Contact with manure from infected cattle

3.3. Catastrophic Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Handling

The following table describes how you plan to manage catastrophic loss of animals in a manner that protects surface and ground water quality. You must follow all national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health.

A Rendering Service will be called as first choice to manage large quantities of mortalities. If a rendering truck is not available, composting or burial may be used as alternative methods. Composting: Temporary composting may be allowed under direction of the State Veterinarian's office. A site must be chosen with impermeable surface to prevent leaching into groundwater. Sides of the compost bins may be temporarily made of round bales of hay or stalks. Sufficient composting material must be used. Finished compost must be spread at agronomic rates. Up to 50% of the compost may be mixed back into the composter to be reused as carbon source. (See Tennessee Emergency Disposal of Dead Animals in this section.)

Important! In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name: State Veterinarian of Tennessee
Contact name: Dr Ronald Wilson
Phone number: 615 837-5120

3.4. Fuels & Chemical Handling

Gasoline and diesel fuel is stored on site in above-ground storage tanks located northwest of the dairy barn. These tanks are inspected frequently. No leaks were observed. Detergents and disinfectants are stored in the tank room south of the dairy barn to be used for power washing and cleanup of the milking equipment. Roundup herbicide and other weed control chemicals are stored in the machine shed and used for maintaining fence lines and pastures as needed.

No other hazardous chemicals are stored at this location.

Fuel handling:

Small spills during fuel transfer are bound to occur from time to time. Petroleum fuel evaporates rapidly at the land surface; however fuel readily seeps into the soil. Local geology and soil type determines how quickly fuel may reach groundwater supplies. Once in the groundwater environment, fuel is relatively stable, making it difficult to clean up. Even small spills or leaks in the same place over time are a potential threat to water resources. To reduce potential leaks and spills during fuel transfer:

- Always supervise fuel transfer from storage to equipment to prevent spillover.
- Use a can to catch any drops that may follow after shutting off the fuel nozzle.
- Replace a leaking or defective nozzle promptly.
- Enforce a "no smoking" rule at the fuel handling and storage facility.
- Keep fuel pumps and nozzles secure from children or vandalism.
- Label each pump or nozzle as to the type of fuel dispensed.

Above-ground Storage Tanks (ASTs) provide easy access and greater opportunity to observe and monitor tanks that may be leaking as compared to underground tanks. However, placement of tanks above the ground requires that tanks be protected from impact by farm equipment and personal vehicles. Spending some time on the proper placement of a new tank or implementing safety procedures to an existing tank can greatly reduce any risks associated with an AST.

Following are specific points that should be addressed when conducting an assessment of your ASTs.

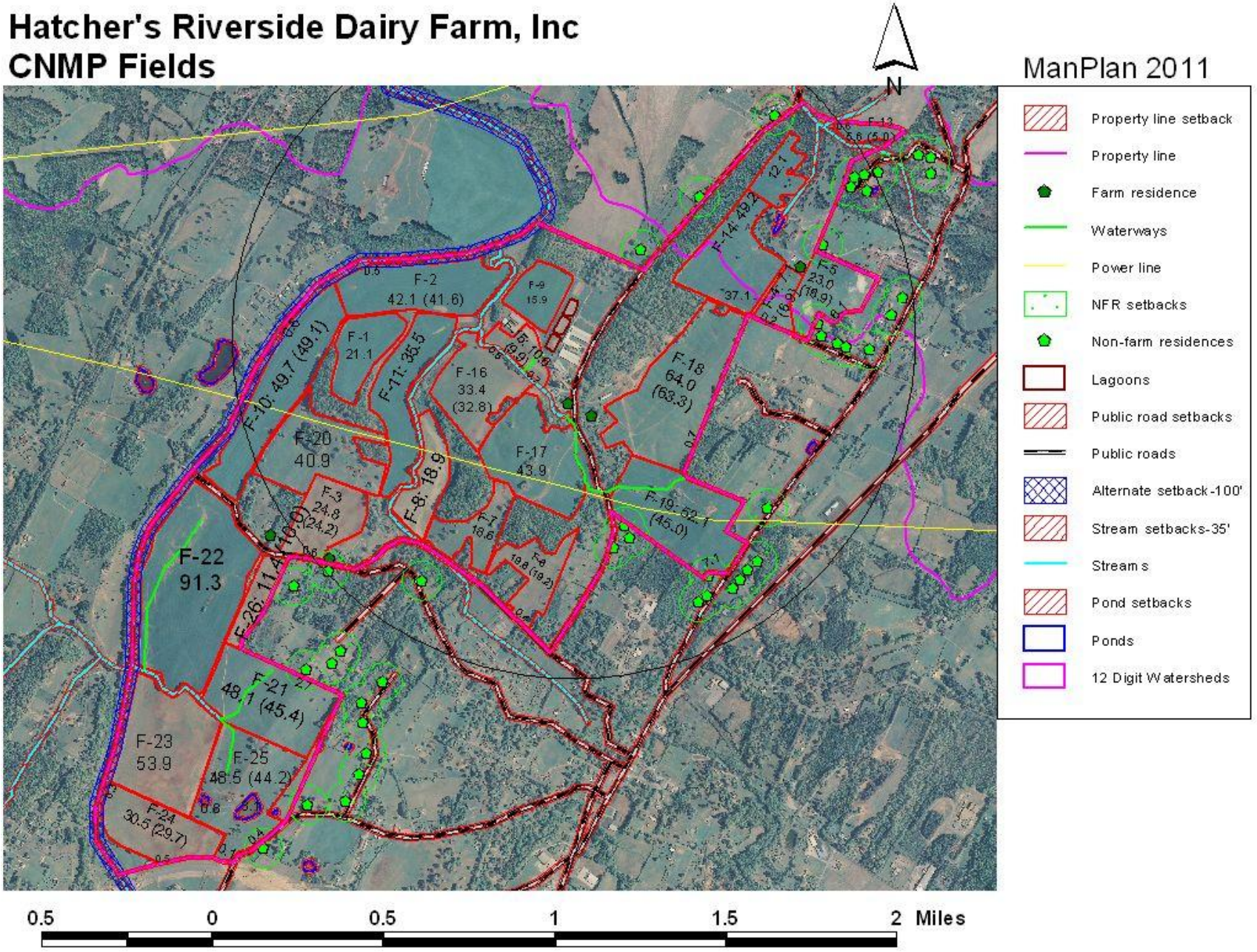
- Comply with state-local rules for electrical safety and fire prevention. Keep a fire extinguisher in close proximity (e.g. within 75 feet) of ASTs.
- AST's should be located at least 50 feet from any building or combustible storage.
- Properly label tank contents, describe the health and physical hazards of the product.
- Secure against vandalism and tampering.
- If top-opening only, place on a stable base of timbers, blocks, concrete, etc. ASTs should not be in contact with bare soil.
- Display a "No Smoking" sign.
- Guard tank against impact. Choose a site where farm vehicles can easily maneuver for fueling.
- Enclose wiring in a conduit.
- Locate ASTs where soil strength is adequate to hold the weight of a full storage tank (or tanks).

CHEMICALS: *For hazardous chemicals that may be stored on this site in the future, the following guidelines should be implemented.*

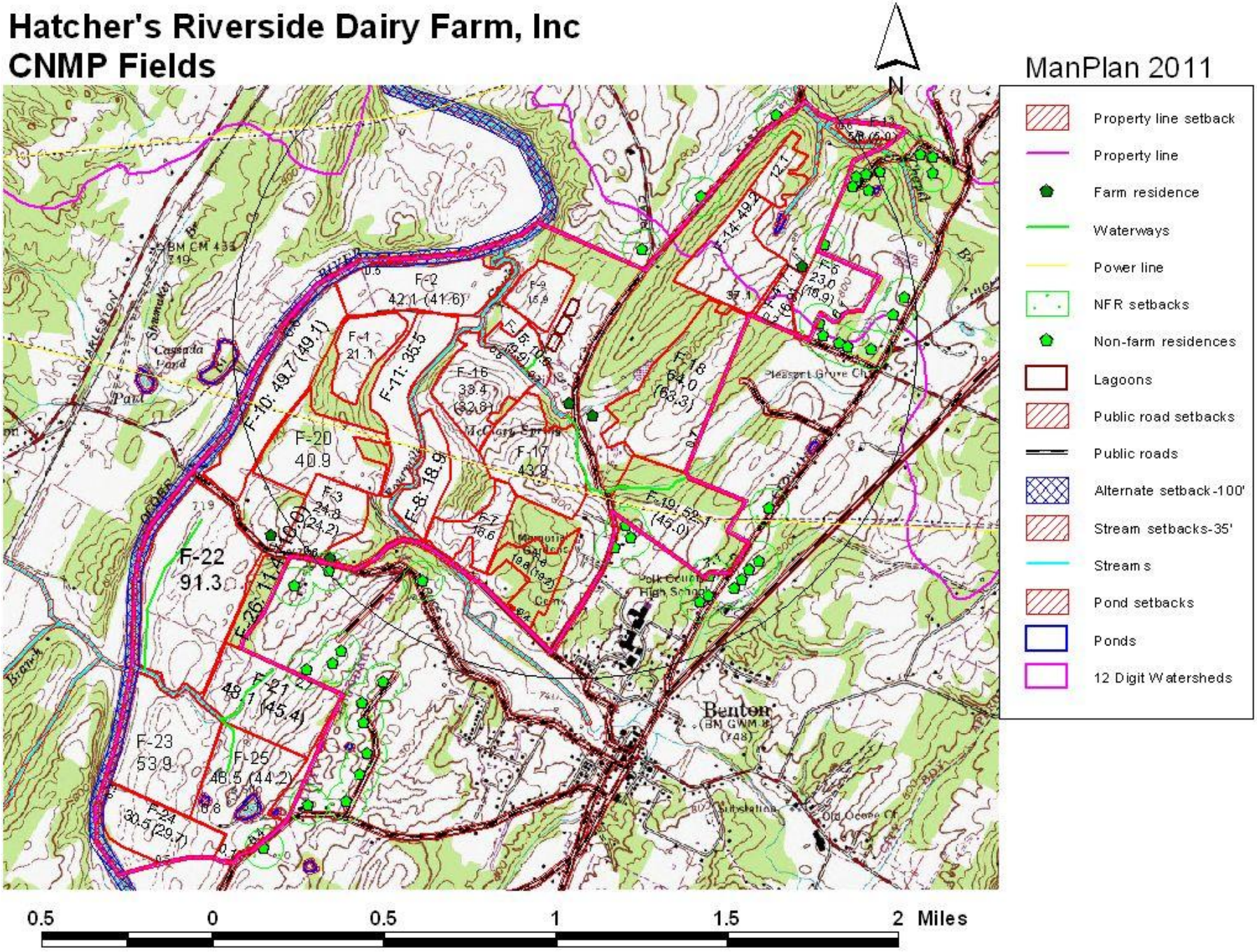
	Measure
X	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
X	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
X	Chemical storage areas are covered to prevent chemical contact with rain or snow.
X	Emergency procedures and equipment are in place to contain and clean up chemical spills.
X	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
X	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

Section 4. Land Treatment

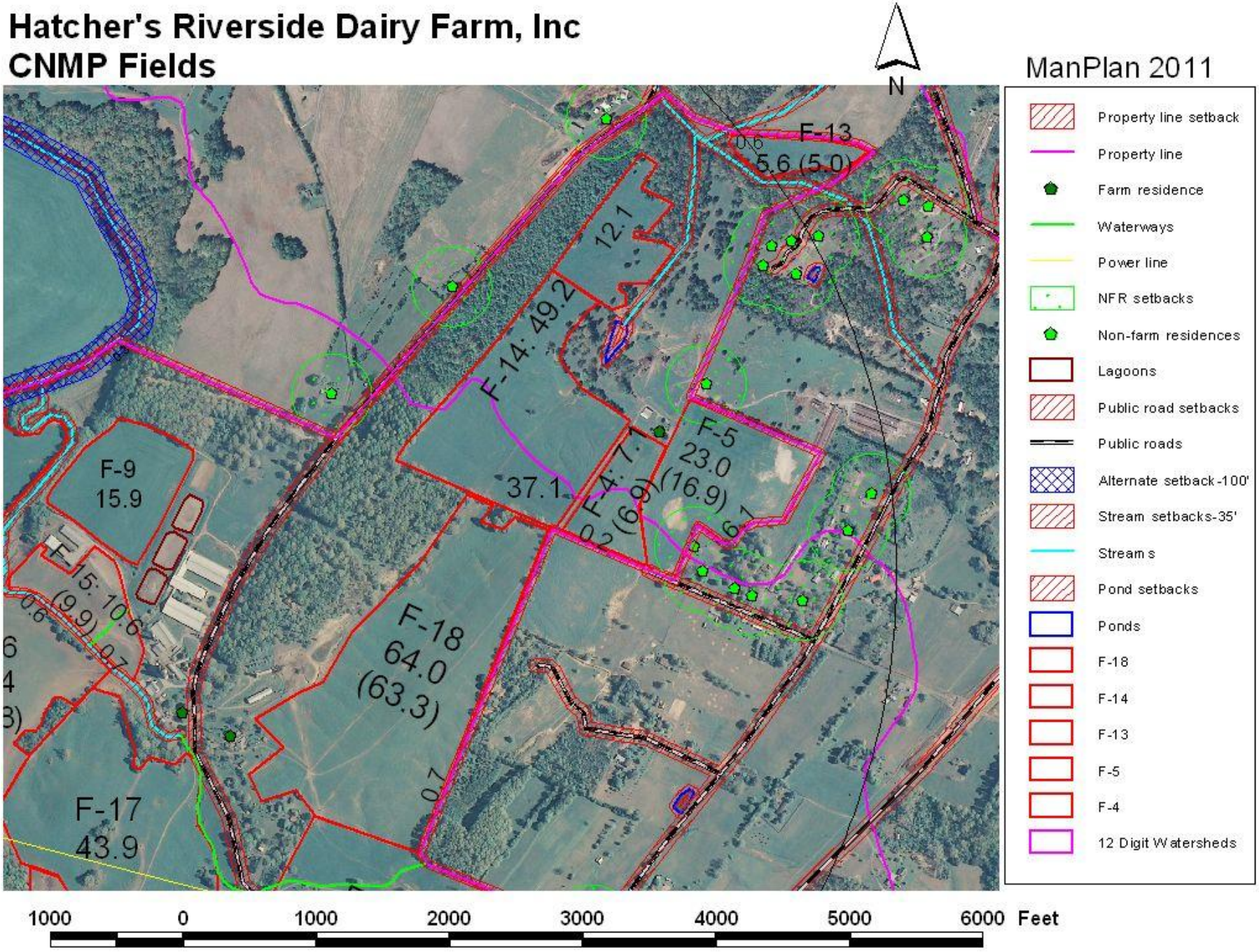
4.1. Map(s) of Fields and Conservation Practices



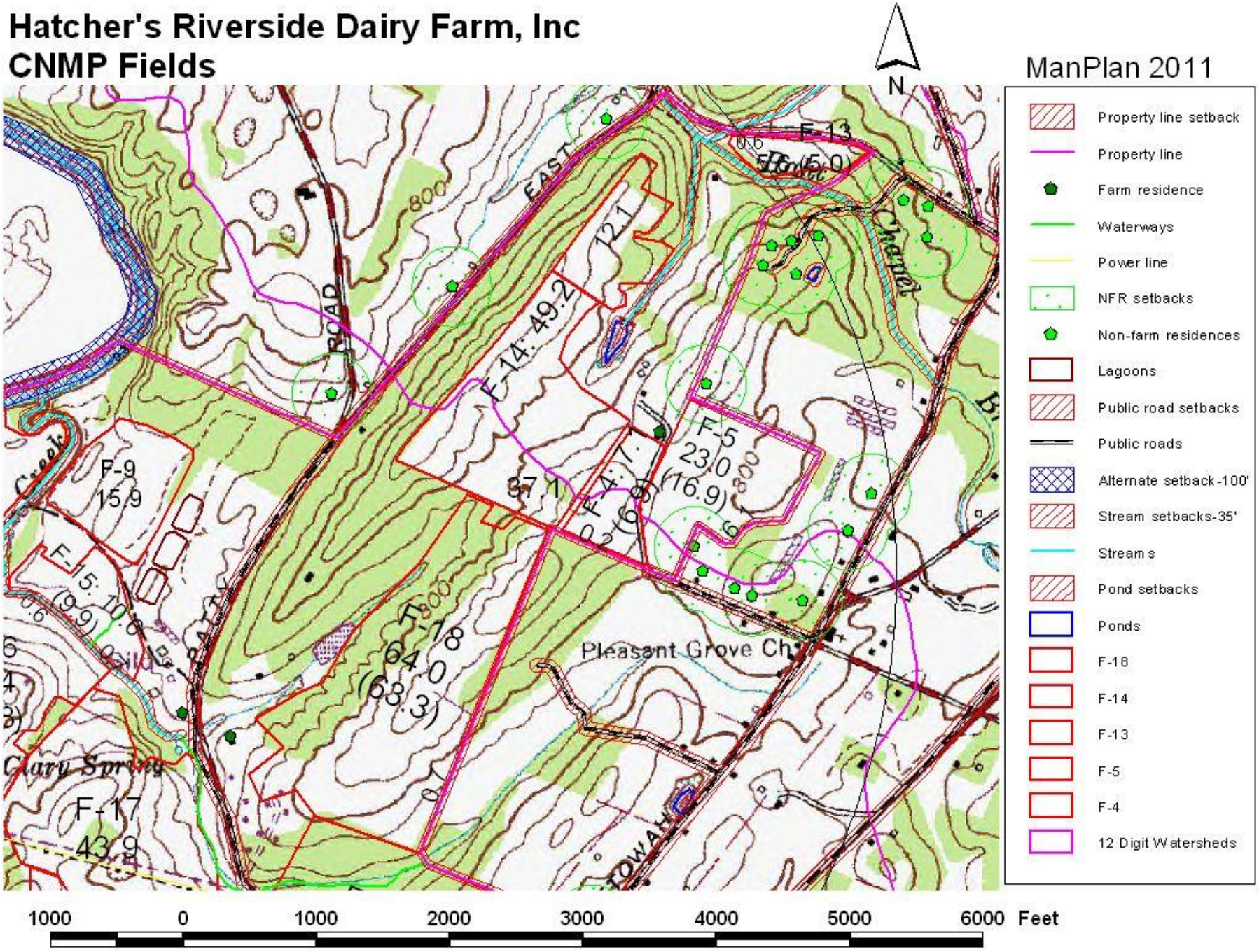
Hatcher's Riverside Dairy Farm, Inc
CNMP Fields



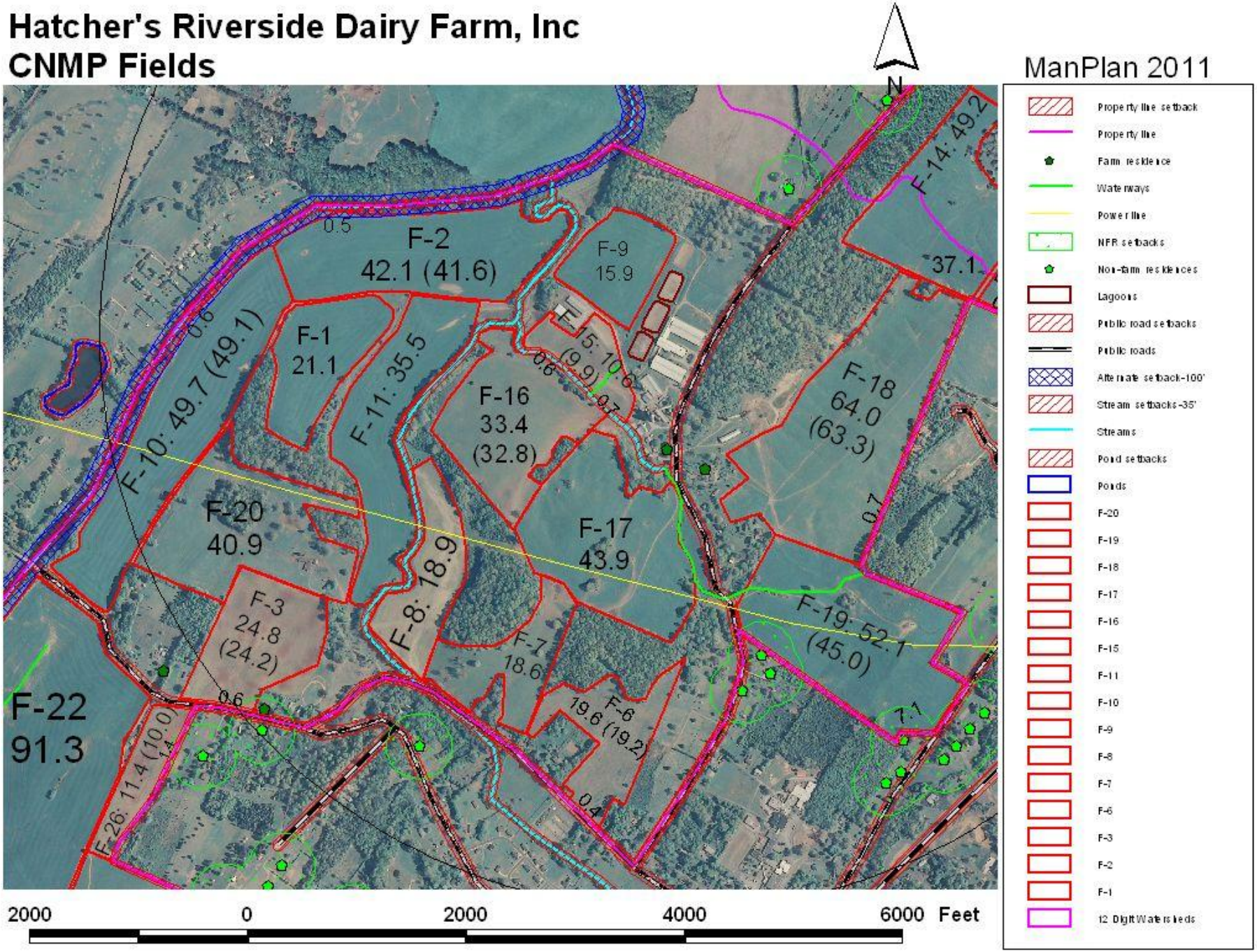
Hatcher's Riverside Dairy Farm, Inc
CNMP Fields



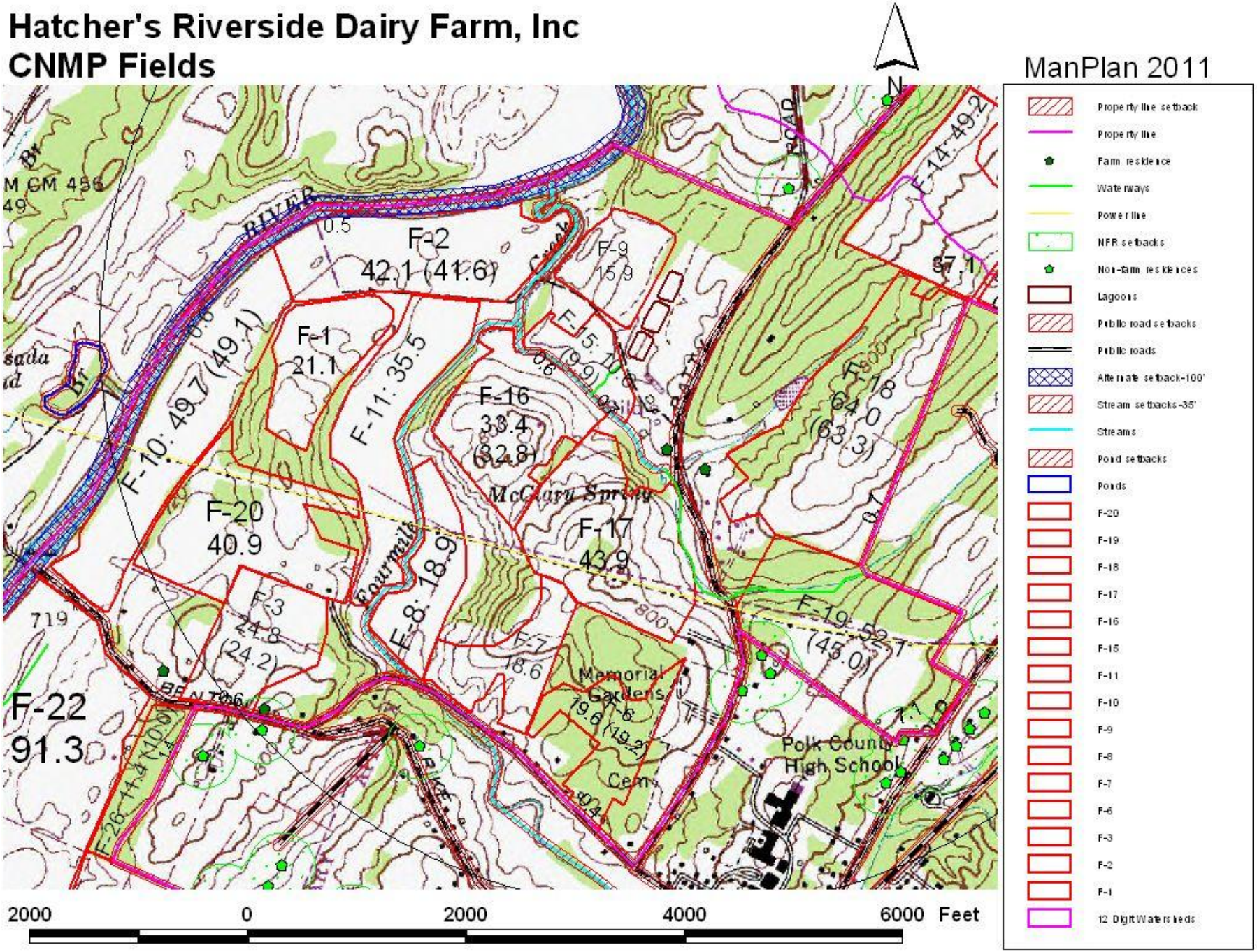
Hatcher's Riverside Dairy Farm, Inc
CNMP Fields



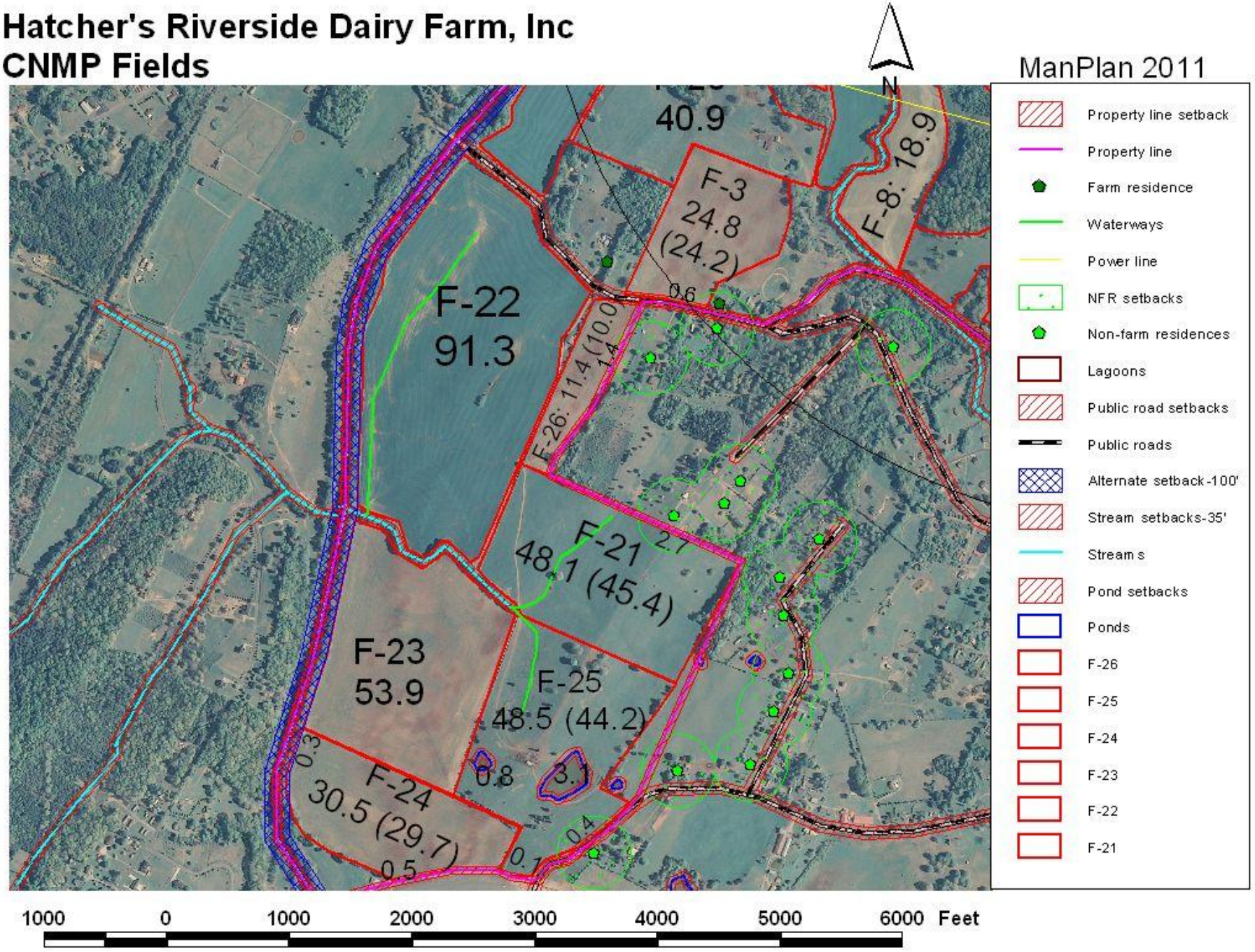
Hatcher's Riverside Dairy Farm, Inc
CNMP Fields



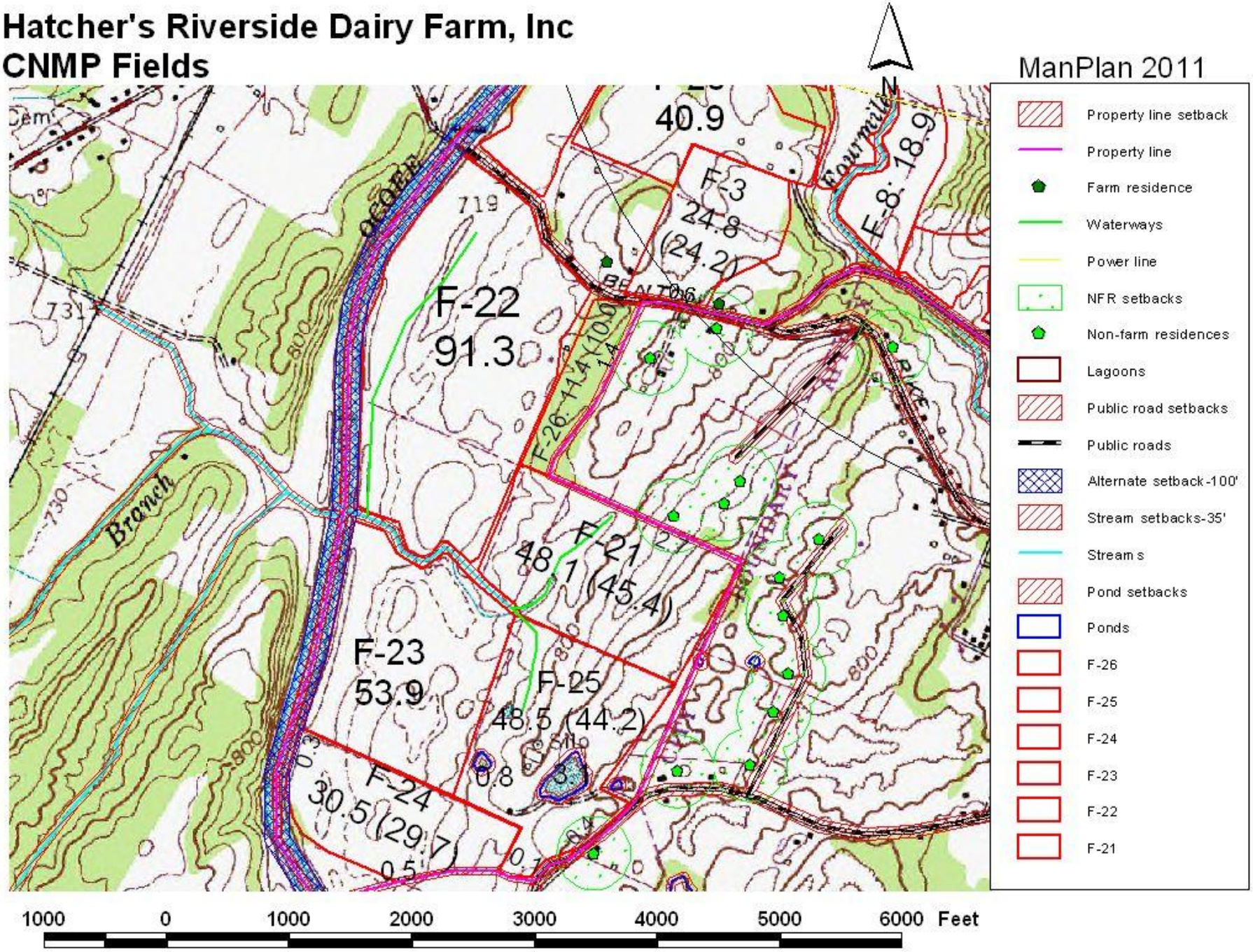
Hatcher's Riverside Dairy Farm, Inc
CNMP Fields



Hatcher's Riverside Dairy Farm, Inc
CNMP Fields



Hatcher's Riverside Dairy Farm, Inc
CNMP Fields



4.2. Land Treatment Conservation Practices

This section has individual field information for all fields in the nutrient management plan, including: Aerial photos and topographical maps, marked with setbacks and conservation practices implemented, soil tests results and RUSLE-2 individual field profiles.

Tabbed Information for each field:

- **FSA map**
- **Overview Map, (with conservation practices)**
- **Soil type maps**
- **RUSLE2 Individual Field Profile Report**
- **Soil Test results**

Necessary conservation practices have been established and maintained on cropland, hayfields and pastures where animal by-products are applied. All fields to maintain vegetative filter strips or riparian buffers along the river. Refer to the NRCS conservation plan for any additional practices that may be implemented on this farm.

The following NRCS Standard Practices apply to this CNMP and are included in Section 10 for reference.

313 - Waste Storage Structure
412 Fence
511 – Forage Harvest Management
523- Prescribed Grazing
590 -- Nutrient Management
633 -- Waste Utilization

Planned Land Treatment:

This section of the plan addresses management practices for all fields to reduce soil losses to or below tolerable soil losses or “T” values. Topography, soil types, slopes and lengths of slopes, crop yields, and crop management practices were taken into consideration as well as conservation practices and land treatment operations. RUSLE2 soil loss calculations were completed for all fields in this plan and field inspections were carried out in the spring of 2011.

All fields are below “T” levels with the current system of land treatment forage crops, grazing management and seeding practices.

Soil types present in the fields included in this Nutrient Management Plan are:

Code	Soil Description	Acres	Percent of field	Non-Irr Class
WbC2	Waynesboro loam, 5 to 12 percent slopes, eroded	148.6	16.6%	IIIe
DeC2	Decatur silt loam, 5 to 12 percent slopes, eroded	103.7	11.6%	IIIe
SeB	Sequatchie silt loam, 2 to 5 percent slopes, rarely flooded	98.9	11.1%	IIe
WbB2	Waynesboro loam, 2 to 5 percent slopes, eroded	83.4	9.3%	IIe
DeB2	Decatur silt loam, 2 to 5 percent slopes, eroded	75.6	8.5%	IIe
MnD	Minvale gravelly silt loam, 12 to 25 percent slopes	74.7	8.4%	IVe
WbD2	Waynesboro loam, 12 to 25 percent slopes, eroded	64.6	7.2%	IVe
To	Toccoa loam, 0 to 4 percent slopes, rarely flooded	59.6	6.7%	IIw
MnC	Minvale gravelly silt loam, 5 to 12 percent slopes	53.2	6.0%	IIIe
DeD2	Decatur silt loam, 12 to 20 percent slopes, eroded	51.8	5.8%	IVe
Ea	Emory silt loam, 0 to 4 percent slopes, occasionally flooded	50.2	5.6%	IIw
TaE	Talbott-Rock outcrop complex, 12 to 50 percent slopes	8.6	1.0%	VIIs
CoD2	Collegedale silt loam, 12 to 25 percent slopes, eroded	6.9	0.8%	VIe
Ha	Hamblen silt loam, occasionally flooded	5.2	0.6%	IIw
Wt	Whitwell loam, 0 to 3 percent slopes, occasionally flooded	3.5	0.4%	IIw
WbD3	Waynesboro clay loam, 12 to 25 percent slopes, severely eroded	2.5	0.3%	VIe
CoC2	Collegedale silt loam, 5 to 12 percent slopes, eroded	1.7	0.2%	IVe

Include Soil Map Unit Descriptions next page.

Section 5. Soil and Risk Assessment Analysis

5.1. Soil Information

Field	Soil Survey	Map Unit	Soil Component Name	Surface Texture	Slope Range (%)	OM Range (%)	Bedrock Depth (in.)
1H-Alfalfa	139	DeC2	Decatur	SIL	5-12%	0.5-2%	
2H-BridgeBottom	139	To	Toccoa	L	0-4%	1-2%	
3H-Donnies	139	DeC2	Decatur	SIL	5-12%	0.5-2%	
4H-Hoss 1	139	WbC2	Waynesboro	L	5-12%	0.5-2%	
5H-Hoss 2	139	MnD	Minvale	GR-SIL	12-25%	0.5-2%	
6H-Leach	139	DeC2	Decatur	SIL	5-12%	0.5-2%	
7H-Presswood 2	139	WbD2	Waynesboro	L	12-25%	0.5-2%	
8H-Presswood	139	SeB	Sequatchie	SIL	2-5%	1-3%	
9H-Red-Hill	139	DeC2	Decatur	SIL	5-12%	0.5-2%	
10H-Taylor-Bott	139	SeB	Sequatchie	SIL	2-5%	1-3%	
11H-Tree-Bottom	139	SeB	Sequatchie	SIL	2-5%	1-3%	
13-H-4	139	WbC2	Waynesboro	L	5-12%	0.5-2%	
14-H-6	139	MnD	Minvale	GR-SIL	12-25%	0.5-2%	
15-H-9	139	DeC2	Decatur	SIL	5-12%	0.5-2%	
16-H-10	139	DeC2	Decatur	SIL	5-12%	0.5-2%	
17-H-15	139	DeD2	Decatur	SIL	12-20%	0.5-2%	
18-H-18	139	MnC	Minvale	GR-SIL	5-12%	0.5-2%	
19-H-19	139	WbC2	Waynesboro	L	5-12%	0.5-2%	
20-H-21	139	DeC2	Decatur	SIL	5-12%	0.5-2%	
21-MAirporthil	139	WbD2	Waynesboro	L	12-25%	0.5-2%	
22-M-Lawson	139	DeB2	Decatur	SIL	2-5%	0.5-2%	
23-Moorehouse1	139	DeB2	Decatur	SIL	2-5%	0.5-2%	
24-Moorehouse2	139	DeB2	Decatur	SIL	2-5%	0.5-2%	
25-Moorehouse3	139	WbD2	Waynesboro	L	12-25%	0.5-2%	
26-M-Vest	139	WbC2	Waynesboro	L	5-12%	0.5-2%	

5.2. Predicted Soil Erosion

Field	Predominant Soil Type	Slope (%)	Irrigation (Ton/Ac/Yr)	Gully (Ton/Ac/Yr)	Ephemeral (Ton/Ac/Yr)	Plan Avg. Soil Loss (Ton/Ac/Yr)
1H-Alfalfa	DeC2 (Decatur SIL)	5.0				1.0
2H-BridgeBottom	To (Toccoa L)	1.0				2.5
3H-Donnies	DeC2 (Decatur SIL)	5.0				4.8
4H-Hoss 1	WbC2 (Waynesboro L)	5.0				0.1
5H-Hoss 2	MnD (Minvale GR-SIL)	10.0				0.1
6H-Leach	DeC2 (Decatur SIL)	5.0				0.1
7H-Presswood 2	WbD2 (Waynesboro L)	10.0				0.1
8H-Presswood	SeB (Sequatchie SIL)	2.0				2.6
9H-Red-Hill	DeC2 (Decatur SIL)	5.0				4.2
10H-Taylor-Bott	SeB (Sequatchie SIL)	2.0				4.5

Field	Predominant Soil Type	Slope (%)	Irrigation (Ton/Ac/Yr)	Gully (Ton/Ac/Yr)	Ephemeral (Ton/Ac/Yr)	Plan Avg. Soil Loss (Ton/Ac/Yr)
11H-Tree-Bottom	SeB (Sequatchie SIL)	2.0				4.5
13-H-4	WbC2 (Waynesboro L)	5.0				0.1
14-H-6	MnD (Minvale GR-SIL)	10.0				0.1
15-H-9	DeC2 (Decatur SIL)	5.0				0.1
16-H-10	DeC2 (Decatur SIL)	5.0				0.1
17-H-15	DeD2 (Decatur SIL)	10.0				0.1
18-H-18	MnC (Minvale GR-SIL)	5.0				0.1
19-H-19	WbC2 (Waynesboro L)	5.0				0.1
20-H-21	DeC2 (Decatur SIL)	5.0				0.1
21-MAirporthil	WbD2 (Waynesboro L)	10.0				0.1
22-M-Lawson	DeB2 (Decatur SIL)	2.0				4.7
23-Moorehouse1	DeB2 (Decatur SIL)	2.0				3.9
24-Moorehouse2	DeB2 (Decatur SIL)	2.0				3.4
25-Moorehouse3	WbD2 (Waynesboro L)	10.0				0.1
26-M-Vest	WbC2 (Waynesboro L)	5.0				4.5

5.3. Nitrogen and Phosphorus Risk Analysis

Tennessee Phosphorus Index

The Tennessee Phosphorus (P) index was used to determine the potential for phosphorus transport off the fields. Considering all of the parameters that go into calculating the Phosphorus Index, Table 9 (next page), summarizes the P-Index for each field. Planned manure applications will not have a significant impact on the P-Index in the fields in this NMP unless exceeding the maximum rates listed on Table 9. All fields have P-Indexes rated MEDIUM at the indicated application rates for P2O5.

While soil test P is not the only factor affecting Phosphorus environmental risks, this plan does consider that soil P levels are very high for several of the application fields. The plan recommends that P2O5 applications for Field 'G' be discontinued so that P concentration in the soil will be reduced over time. Also for all other fields P2O5 applications should be limited to removal rates so that soil P values do not continue to increase for fields that are in the high to very high range for Phosphorus.

Environmental Considerations for Managing Phosphorus:

Phosphorus (P) loading to surface water can accelerate Eutrophication. The availability of other nutrients and light penetration into the water column will also influence the response of water bodies to phosphorus. Factors such as: the amount of erosion and runoff, the form, amount, and distribution of phosphorus in the soil: and fertilizer and manure application rate, timing and placement determine P loss from agricultural fields and the resulting P loading to water resources. Most phosphorus compounds found in soils have low water solubility. Consequently, P loss from agricultural land was once thought to be primarily associated with soil erosion. In many cases, sediment-bound P is still the dominant form in which P losses from agricultural fields occur. Over the past decade, research has shown that phosphorus can be lost in runoff in dissolved forms. High dissolved P concentration in runoff is more frequently observed where soil P levels are high particularly near the soil surface. High soil P levels, however, do not automatically equate to high dissolved P in runoff. As stated earlier, numerous factors interact to create the potential for P losses from agricultural fields. Many of the basis processes that govern P transport are known.

The Tennessee P Index rates the application fields based on the following factors:

- Soil Test P
- P2O5 application rate (all sources)
- Form of Phosphorus applied
- Timing of Phosphorus applications
- Method of application
- Hydrological group rating of the soils in the application field.
- Buffer and Setback widths, slopes % and length, vegetative cover, and soil texture

According to the NRCS nutrient management standard, fields ranked in the MEDIUM risk category may receive organic (manure) or inorganic (commercial fertilizer) applications at nitrogen-based rates per the table below.

Total Points from P Index	***neralized Interpretation of P Index Points for the Site***
< 100	**LOW** potential for P movement from the field. If farming practices are maintained at the current level there is a low probability of an adverse impact to surface waters from P losses. Nitrogen-based nutrient management planning is satisfactory for this site. Soil P levels and P loss potential may increase in the future due to N-based nutrient management.
100 - 200	**MEDIUM** potential for P movement from the field. The chance for adverse impact to surface waters exists. *Nitrogen-based nutrient management planning may be satisfactory for this field when conservation measures are implemented to lessen the probability of P loss*. Soil P levels and P loss potential may increase in the future due to N-based nutrient management.
201 - 300	**HIGH** potential for P movement from the field. The chance for adverse impact to surface waters is likely unless remedial action is taken. Soil and water conservation practices are necessary (if practical) to reduce the risk of P movement and water quality degradation. If risk cannot be reduced, then a P-based nutrient management plan will be implemented.
> 301	**VERY HIGH** potential for P movement from the field and an adverse impact on surface waters. All necessary soil and water conservation practices, plus a P-based nutrient management plan must be put in place to avoid the potential for water quality degradation.

Tennessee Phosphorus Index

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
1H-Alfalfa	Rot. Avg.	6	25	48	150	Medium
2H-BridgeBottom	Rot. Avg.	6	25	48	150	Medium
3H-Donnies	Rot. Avg.	6	36	24	216	High
4H-Hoss 1	Rot. Avg.	6	24	24	144	Medium
5H-Hoss 2	Rot. Avg.	6	24	24	144	Medium
6H-Leach	Rot. Avg.	6	20	24	120	Medium
7H-Presswood 2	Rot. Avg.	6	20	24	120	Medium
8H-Presswood	Rot. Avg.	6	39	12	234	High
9H-Red-Hill	Rot. Avg.	6	25	48	150	Medium
10H-Taylor-Bott	Rot. Avg.	6	4	24	24	Low
11H-Tree-Bottom	Rot. Avg.	6	36	24	216	High
13-H-4	Rot. Avg.	6	4	24	24	Low
14-H-6	Rot. Avg.	6	20	24	120	Medium
15-H-9	Rot. Avg.	6	38	24	228	High
16-H-10	Rot. Avg.	6	4	24	24	Low
17-H-15	Rot. Avg.	6	4	24	24	Low
18-H-18	Rot. Avg.	6	8	48	48	Low
19-H-19	Rot. Avg.	6	20	24	120	Medium
20-H-21	Rot. Avg.	6	20	24	120	Medium
21-MAirporthil	Rot. Avg.	6	17	6	102	Medium
22-M-Lawson	Rot. Avg.	6	39	12	234	High
23-Moorehouse1	Rot. Avg.	6	41	24	246	High
24-Moorehouse2	Rot. Avg.	6	21	6	126	Medium
25-Moorehouse3	Rot. Avg.	6	18	12	108	Medium
26-M-Vest	Rot. Avg.	6	41	24	246	High

5.4. Additional Field Data Required by Risk Assessment Procedure

Field	Distance to Water (Feet)	Slope Length (Feet)	Buffer Width (Feet)	Tillage/Cover Type
1H-Alfalfa	1,125	150	40	Min-till w/ light to medium residues
2H-BridgeBottom	400	200	40	Min-till w/ light to medium residues
3H-Donnies	925	150	40	Min-till w/ light to medium residues
4H-Hoss 1	2,525	150	40	Min-till w/ light to medium residues
5H-Hoss 2	1,750	100	40	Min-till w/ light to medium residues
6H-Leach	1,075	150	40	Pasture/Hay
7H-Presswood 2	775	100	40	Pasture/Hay
8H-Presswood	200	200	40	Min-till w/ light to medium residues
9H-Red-Hill	450	150	40	Min-till w/ light to medium residues
10H-Taylor-Bott	400	200	40	Min-till w/ light to medium residues
11H-Tree-Bottom	250	200	40	Min-till w/ light to medium residues
13-H-4	500	150	40	Pasture/Hay
14-H-6	750	100	40	Pasture/Hay
15-H-9	250	150	40	Pasture/Hay
16-H-10	650	150	40	Pasture/Hay
17-H-15	700	100	40	Pasture/Hay
18-H-18	1,875	150	40	Pasture/Hay
19-H-19	1,175	150	40	Pasture/Hay
20-H-21	1,200	150	40	Pasture/Hay
21-MAirporthil	850	100	40	Pasture/Hay
22-M-Lawson	950	200	40	Min-till w/ light to medium residues
23-Moorehouse1	775	200	40	Min-till w/ light to medium residues
24-Moorehouse2	700	200	40	Min-till w/ light to medium residues
25-Moorehouse3	400	100	40	Pasture/Hay
26-M-Vest	1,875	150	40	Min-till w/ light to medium residues

Nitrogen Leaching Risk Assessment and Nitrogen Management:

Nitrogen Leaching potential was assessed for all the fields in this CNMP using the nationally accepted "Colorado Nitrogen Leaching Index Risk Assessment" tool.
The results are listed in a table on the following page. All of the fields have LOW ratings under the planned management for crops grown and nitrogen sources applied.

Permeability Class, irrigation methods and efficiencies, Manure effluent application rates, application timing and mitigating practices implemented were factors considered to make this determination.

The following practices are additional recommendations as part of an overall nutrient management plan to reduce nitrogen losses to groundwater by leaching.

1. Set realistic yield goals and consider University of Tennessee nitrogen recommendations for crops grown.
2. Properly sample lagoon effluent applied to determine actual Nitrogen and other plant nutrients being applied.
3. Apply nitrogen in split applications during the growing season to reduce leaching losses and improve plant utilization of nitrogen by supplying N nearer to the times when the plants need the most nitrogen, at green up in the spring and after hay harvests throughout the summer.
4. Take credit for nitrogen from **all** sources: previously grown legume crops, nitrogen contained in any fertilizer products applied, manure applications, etc.
5. Conduct a post-harvest evaluation of the nitrogen program:
    - Compare actual yields vs. yield goal;
    - Evaluate factors affecting yields and nitrogen use efficiency;
    - Consider using plant tissue sampling and nitrate tests to evaluate plant nitrogen sufficiency;
    - Refine nitrogen rates for future years.
6. Consider taking some deep soil tests in the spring to determine nitrogen availability & movement in the soil.
7. Review each nutrient management plan annually to determine if changes in the nutrient budget are needed.
8. Calibrate application equipment annually, at minimum, to ensure uniform distribution of material at planned rates.
9. Avoid applying nitrogen around environmentally sensitive areas such as sinkholes, wells, gullies, ditches, surface inlets, or rapidly permeable areas.
10. Observe all manure and effluent application setbacks and/of buffers for irrigation and other manures or compost applications.

NRCS National - Nitrogen Leaching Tool

Nitrogen Leaching Index Risk Assessment (Version 2.0)

Factor	Low (1)	Medium (2)	High (3)	Very High (4)	Score
1.Permeability Class	Very slow, slow, and mod slow	Moderate	Moderately rapid	Rapid and very rapid	**2**
2. Irrigation Application Efficiency	High >85%	Moderate 60-85%	Moderately Low 35 – 60%	Low , 35%	**0**
3a. Nitrogen Application Rate (commercial N fertilizer with or without manure)	Total N application below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate is 1 to 50 lbs/acre above agronomic rate	Total N application rate is > 50 lbs/acre above agronomic rate	**2**
3b. Manure Effluent Application Rate (no commercial N fertilizer)	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year.	**2**
4. Application Timing	In season split application (2 or more splits)	Any nitrogen application 0-3 months before crop planting	Any nitrogen application 3-5 months before crop planting	Any nitrogen application more than 5 months before crop planting	**1**
GROSS SCORE (Sum of 1 thru 4)					**7**
5. Best Management Practice (BMP) Implementation Credits: Subtract 1 point for each of the following BMP's implemented in the field: <*Slow Release Fertilizers*>; **<*Cover Crops*>;** <*Nitrification Inhibitors**>**;<*Deep Rooted Crops in Rotation*>**; <*Deep Soil Sampling to determine sub-soil N credit*>;					**2**
Net Score; (Sum of factors 1 thru 4 minus factor 5, BMP credits)					**5**

Net Score	Risk Interpretations
< 8	This field has a **LOW** risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to **MEDIUM**.
8 to 11	This field has a **MEDIUM** risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to **HIGH.**
12 to 15	This field has a **High**-risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to **VERY HIGH**.
16	This field has a **VERY High**-risk for nitrogen leaching and management changes are needed to decrease risk. **Manure applications are NOT recommended**. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Section 6. Nutrient Management

6.1. Field Information

Field ID	Sub-field ID	Total Acres	Spreadable Acres	County	Predominant Soil Type	Slope (%)	FSA Farm	FSA Tract	FSA Field
1H-Alfalfa		21.1	21.1	Polk	DeC2 (Decatur SIL)	5.0			
2H-BridgeBottom		42.1	41.6	Polk	To (Toccoa L)	1.0			
3H-Donnies		24.8	24.2	Polk	DeC2 (Decatur SIL)	5.0			
4H-Hoss 1		7.1	6.9	Polk	WbC2 (Waynesboro L)	5.0			
5H-Hoss 2		23.0	16.9	Polk	MnD (Minvale GR-SIL)	10.0			
6H-Leach		19.6	19.2	Polk	DeC2 (Decatur SIL)	5.0			
7H-Presswood 2		18.6	18.6	Polk	WbD2 (Waynesboro L)	10.0			
8H-Presswood		18.9	18.9	Polk	SeB (Sequatchie SIL)	2.0			
9H-Red-Hill		15.9	15.9	Polk	DeC2 (Decatur SIL)	5.0			
10H-Taylor-Bott		49.7	49.1	Polk	SeB (Sequatchie SIL)	2.0			
11H-Tree-Bottom		35.5	35.5	Polk	SeB (Sequatchie SIL)	2.0			
13-H-4		5.6	5.0	Polk	WbC2 (Waynesboro L)	5.0			
14-H-6		49.2	49.2	Polk	MnD (Minvale GR-SIL)	10.0			
15-H-9		10.6	9.9	Polk	DeC2 (Decatur SIL)	5.0			
16-H-10		33.4	32.8	Polk	DeC2 (Decatur SIL)	5.0			
17-H-15		43.9	43.9	Polk	DeD2 (Decatur SIL)	10.0			
18-H-18		64.0	63.3	Polk	MnC (Minvale GR-SIL)	5.0			
19-H-19		52.1	45.0	Polk	WbC2 (Waynesboro L)	5.0			
20-H-21		40.9	40.9	Polk	DeC2 (Decatur SIL)	5.0			
21-MAirporthil		48.1	45.4	Polk	WbD2 (Waynesboro L)	10.0			
22-M-Lawson		91.3	91.3	Polk	DeB2 (Decatur SIL)	2.0			
23-Moorehouse1		53.9	53.9	Polk	DeB2 (Decatur SIL)	2.0			
24-Moorehouse2		30.5	29.7	Polk	DeB2 (Decatur SIL)	2.0			
25-Moorehouse3		48.5	44.2	Polk	WbD2 (Waynesboro L)	10.0			
26-M-Vest		11.4	10.0	Polk	WbC2 (Waynesboro L)	5.0			

Total Acres: **859.7** **832.4**

OVERVIEW:

This Nutrient Management Plan conforms to the Tennessee NRCS 590 Standard Practice

P1, Phosphorus:

Soil Sample results indicated that fields range from Medium to Very High for soil P. Over time the manure applications recommended are expected to build soil P slightly for most fields, but planned to be limited to a P replacement rate for fields that are highest in Phosphorus; (Fields: 1, 2, & 9).

Planned applications will not increase the P risk significantly. (The Phosphorus Index, a measure of risk of phosphorus pollution, is rated Medium for all fields that are planned to receive manure)

K, Potassium:

Soil Sample results indicated that fields range from Medium to Very High for soil Potassium (K) Over time the manure applications recommended are expected to maintain soil K towards at or above optimum levels. Hay & silage removes large amounts of potassium from the soil and manure applications are a good way to add potassium back to the soil.

pH: For maximum yields and soil fertility, it is recommended to maintain a soil pH of at least 6.0 for corn & small grains rotations. If pH is less than 6.0, liming material should be applied at U of I recommended rates based on the CCE (Calcium Carbonate Equivalent) rating and the fineness of the limestone material. If alfalfa or clover is part of the rotation pH should be maintained between 6.5 and 7.0. All fields currently are within the optimal range for planned crop rotations with the exception of Fields 6 & 20. Lime is recommended at this time for 6 & 20 at 3 tons per acre. Fields should be retested at least 6 months after lime is applied to re-evaluate pH.

Guidance in developing a nutrient budget may be obtained from your NRCS Field Office or your University of Tennessee Agricultural Extension Service Agent. Land application procedures must be planned and implemented in a way that minimizes potential adverse impacts to the environment and public health.

6.2. Manure Application Setback Distances

Setback Requirements: Class I CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, permanent vegetated setback >=35 feet	35
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Open tile line inlet structures	Applied upgradient, permanent vegetated setback >=35 feet	35
Sinkholes	Applied upgradient, permanent vegetated setback >=35 feet	35
Agricultural well heads	Applied upgradient, permanent vegetated setback >=35 feet	35
Other conduits to surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Potable well, public or private	Application down-gradient of feature	150
Potable well, public or private	Application upgradient of feature	300

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: Class II CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, permanent vegetated setback >=35 feet	35
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Open tile line inlet structures	Applied upgradient, permanent vegetated setback >=35 feet	35
Sinkholes	Applied upgradient, permanent vegetated setback >=35 feet	35
Agricultural well heads	Applied upgradient, permanent vegetated setback >=35 feet	35
Other conduits to surface waters	Applied upgradient, permanent vegetated setback >=35 feet	35
Potable well, public or private	Application upgradient of feature	300
Potable well, public or private	Application down-gradient of feature	150

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: NRCS Standard

Feature	Setback Criteria	Setback Distance (Feet)
Well	Application upgradient of feature	300
Well	Application down-gradient of feature	150
Waterbody	Predominant slope <5% with good vegetation	30
Waterbody	Predominant slope 5 to 8% with good vegetation	50
Waterbody	Predominant slope >8%	100
Waterbody	Poor vegetation	100
Public road	All applications	50
Dwelling (other than producer)	All applications	300
Public use area	All applications	300
Property line	Application upgradient of feature	30

Source: Nutrient Management Standard 590
(http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc)

6.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/ 100g)
1H-Alfalfa	2011	2.4	Mehlich-1	399	449	1,433	5,350	lbs/a	7.1	7.9	20.5
2H-BridgeBottom	2011	2.4	Mehlich-1	352	444	762	3,948	lbs/a	6.9	7.8	14.5
3H-Donnies	2011	1.8	Mehlich-1	62	318	616	1,976	lbs/a	7.4	7.8	8.4
4H-Hoss 1	2011	1.6	Mehlich-1	167	204	480	2,140	lbs/a	7.3	7.9	7.6
5H-Hoss 2	2011	1.5	Mehlich-1	129	121	295	1,477	lbs/a	6.8	7.9	6.1
6H-Leach	2011	2.3	Mehlich-1	68	286	163	932	lbs/a	5.7	7.8	5.3
7H-Presswood 2	2011	1.5	Mehlich-1	79	194	536	2,300	lbs/a	7.2	7.8	8.2
8H-Presswood	2011	1.3	Mehlich-1	40	124	558	1,992	lbs/a	7.1	7.9	7.5
9H-Red-Hill	2011	3.3	Mehlich-1	327	387	1,022	4,390	lbs/a	7.1	7.9	15.8
10H-Taylor-Bott	2011	2.2	Mehlich-1	83	381	496	2,024	lbs/a	6.8	7.7	9.3
11H-Tree-Bottom	2011	2.0	Mehlich-1	236	280	778	3,145	lbs/a	7.4	7.9	11.5
13-H-4	2011	2.6	Mehlich-1	163	215	381	2,771	lbs/a	6.3	7.7	10.7
14-H-6	2011	2.6	Mehlich-1	163	215	381	2,771	lbs/a	6.3	7.7	10.7
15-H-9	2011	2.5	Mehlich-1	139	700	2,440	8,760	lbs/a	7.5	7.9	33.0
16-H-10	2011	3.0	Mehlich-1	137	561	690	2,607	lbs/a	6.7	7.7	12.4
17-H-15	2011	3.2	Mehlich-1	133	280	556	3,301	lbs/a	6.6	7.8	12.1
18-H-18	2011	3.6	Mehlich-1	256	184	1,208	4,687	lbs/a	7.2	7.9	17.0
19-H-19	2011	3.0	Mehlich-1	117	268	640	2,404	lbs/a	7.1	7.9	9.2
20-H-21	2011	2.7	Mehlich-1	68	302	291	1,237	lbs/a	5.8	7.7	7.3
21-MAirporthil	2011	2.6	Mehlich-1	26	50	507	1,967	lbs/a	6.9	7.9	8.3
22-M-Lawson	2011	1.9	Mehlich-1	56	320	412	1,622	lbs/a	6.5	7.7	7.9
23-Moorehouse1	2011	1.7	Mehlich-1	92	346	486	1,477	lbs/a	6.8	7.8	7.3
24-Moorehouse2	2011	1.7	Mehlich-1	34	327	385	1,355	lbs/a	6.7	7.8	7.1
25-Moorehouse3	2011	2.2	Mehlich-1	38	168	403	1,535	lbs/a	6.4	7.8	7.1
26-M-Vest	2011	2.3	Mehlich-1	65	243	489	1,597	lbs/a	6.6	7.7	8.0

6.4. Manure Nutrient Analysis

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
Lagoon 1	4.8	40.2	8.0	22.4	15.3	22.4	15.3	Lb/1000Gal	CVAS, Maugansville, MD 21767-0669 11/16/10
Lagoon 2	3.5	31.5	6.8	8.7	16.3	8.7	16.3	Lb/1000Gal	CVAS, Maugansville, MD 21767-0669 11/16/10
Storage Pond	3.1	30.0	6.5	8.5	15.9	8.5	15.9	Lb/1000Gal	CVAS, Maugansville, MD 21767-0669 11/16/10
Barn 20	50.0	21.0	8.0	18.0	26.0	18.0	26.0	Lb/Ton	Midwest Plan Service; Table 10-6
Calf pens	50.0	21.0	8.0	18.0	26.0	18.0	26.0	Lb/Ton	Midwest Plan Service; Table 10-6

(1) Entered analysis may be the average of several individual analyses.

(2) Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm).

6.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
1H-Alfalfa	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
1H-Alfalfa	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
1H-Alfalfa	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
1H-Alfalfa	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
1H-Alfalfa	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
1H-Alfalfa	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
1H-Alfalfa	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
1H-Alfalfa	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
1H-Alfalfa	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
1H-Alfalfa	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
2H-BridgeBottom	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
2H-BridgeBottom	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
2H-BridgeBottom	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
2H-BridgeBottom	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
2H-BridgeBottom	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
2H-BridgeBottom	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
2H-BridgeBottom	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
2H-BridgeBottom	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
2H-BridgeBottom	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
2H-BridgeBottom	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
3H-Donnies	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
3H-Donnies	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
3H-Donnies	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
3H-Donnies	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
3H-Donnies	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
3H-Donnies	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
3H-Donnies	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
3H-Donnies	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
3H-Donnies	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
3H-Donnies	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
4H-Hoss 1	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
4H-Hoss 1	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
4H-Hoss 1	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
4H-Hoss 1	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
4H-Hoss 1	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
4H-Hoss 1	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
4H-Hoss 1	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
4H-Hoss 1	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
4H-Hoss 1	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
4H-Hoss 1	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
5H-Hoss 2	2011	Sm grain spring hay*	6.0 Ton	105	0	40	150	42	186	
5H-Hoss 2	2011	Corn silage	25.0 Ton	150	0	160	208	90	208	
5H-Hoss 2	2012	Sm grain spring hay*	6.0 Ton	105	0	40	150	42	186	
5H-Hoss 2	2012	Corn silage	25.0 Ton	150	0	160	208	90	208	
5H-Hoss 2	2013	Sm grain spring hay*	6.0 Ton	105	0	40	150	42	186	
5H-Hoss 2	2013	Corn silage	25.0 Ton	150	0	160	208	90	208	
5H-Hoss 2	2014	Sm grain spring hay*	6.0 Ton	105	0	40	150	42	186	
5H-Hoss 2	2014	Corn silage	25.0 Ton	150	0	160	208	90	208	
5H-Hoss 2	2015	Sm grain spring hay*	6.0 Ton	105	0	40	150	42	186	
5H-Hoss 2	2015	Corn silage	25.0 Ton	150	0	160	208	90	208	
6H-Leach	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
6H-Leach	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
6H-Leach	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
6H-Leach	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
6H-Leach	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
7H-Presswood 2	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
7H-Presswood 2	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
7H-Presswood 2	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
7H-Presswood 2	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
7H-Presswood 2	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
8H-Presswood	2011	Sm grain spring hay*	4.0 Ton	105	0	40	100	28	124	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
8H-Presswood	2011	Corn silage	25.0 Ton	150	0	160	208	90	208	
8H-Presswood	2012	Sm grain spring hay*	4.0 Ton	105	0	40	100	28	124	
8H-Presswood	2012	Corn silage	25.0 Ton	150	0	160	208	90	208	
8H-Presswood	2013	Sm grain spring hay*	4.0 Ton	105	0	40	100	28	124	
8H-Presswood	2013	Corn silage	25.0 Ton	150	0	160	208	90	208	
8H-Presswood	2014	Sm grain spring hay*	4.0 Ton	105	0	40	100	28	124	
8H-Presswood	2014	Corn silage	25.0 Ton	150	0	160	208	90	208	
8H-Presswood	2015	Sm grain spring hay*	4.0 Ton	105	0	40	100	28	124	
8H-Presswood	2015	Corn silage	25.0 Ton	150	0	160	208	90	208	
9H-Red-Hill	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
9H-Red-Hill	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
9H-Red-Hill	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
9H-Red-Hill	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
9H-Red-Hill	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
9H-Red-Hill	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
9H-Red-Hill	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
9H-Red-Hill	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
9H-Red-Hill	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
9H-Red-Hill	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
10H-Taylor-Bott	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
10H-Taylor-Bott	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
10H-Taylor-Bott	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
10H-Taylor-Bott	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
10H-Taylor-Bott	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
10H-Taylor-Bott	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
10H-Taylor-Bott	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
10H-Taylor-Bott	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
10H-Taylor-Bott	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
10H-Taylor-Bott	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
11H-Tree-Bottom	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
11H-Tree-Bottom	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
11H-Tree-Bottom	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
11H-Tree-Bottom	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
11H-Tree-Bottom	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
11H-Tree-Bottom	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
11H-Tree-Bottom	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
11H-Tree-Bottom	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
11H-Tree-Bottom	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
11H-Tree-Bottom	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
13-H-4	2011	Grass-clover hay maint	4.0 Ton	60	0	0	200	60	240	
13-H-4	2012	Grass-clover hay maint	4.0 Ton	60	0	0	200	60	240	
13-H-4	2013	Grass-clover hay maint	4.0 Ton	60	0	0	200	60	240	
13-H-4	2014	Grass-clover hay maint	4.0 Ton	60	0	0	200	60	240	
13-H-4	2015	Grass-clover hay maint	4.0 Ton	60	0	0	200	60	240	
14-H-6	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
14-H-6	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
14-H-6	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
14-H-6	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
14-H-6	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
15-H-9	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
15-H-9	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
15-H-9	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
15-H-9	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
15-H-9	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
16-H-10	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
16-H-10	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
16-H-10	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
16-H-10	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
16-H-10	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
17-H-15	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
17-H-15	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
17-H-15	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
17-H-15	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
17-H-15	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
18-H-18	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
18-H-18	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
18-H-18	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
18-H-18	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
18-H-18	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
19-H-19	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
19-H-19	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
19-H-19	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
19-H-19	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
19-H-19	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
20-H-21	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
20-H-21	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
20-H-21	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
20-H-21	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
20-H-21	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
21-MAirporthil	2011	Fescue pasture maint	4.0 Ton	120	30	60	152	72	208	
21-MAirporthil	2012	Fescue pasture maint	4.0 Ton	120	30	60	152	72	208	
21-MAirporthil	2013	Fescue pasture maint	4.0 Ton	120	30	60	152	72	208	
21-MAirporthil	2014	Fescue pasture maint	4.0 Ton	120	30	60	152	72	208	
21-MAirporthil	2015	Fescue pasture maint	4.0 Ton	120	30	60	152	72	208	
22-M-Lawson	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
22-M-Lawson	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
22-M-Lawson	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
22-M-Lawson	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
22-M-Lawson	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
22-M-Lawson	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
22-M-Lawson	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
22-M-Lawson	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
22-M-Lawson	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
22-M-Lawson	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
23-Moorehouse1	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
23-Moorehouse1	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
23-Moorehouse1	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
23-Moorehouse1	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
23-Moorehouse1	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
23-Moorehouse1	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
23-Moorehouse1	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
23-Moorehouse1	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
23-Moorehouse1	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
23-Moorehouse1	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
24-Moorehouse2	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
24-Moorehouse2	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
24-Moorehouse2	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
24-Moorehouse2	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
24-Moorehouse2	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
24-Moorehouse2	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
24-Moorehouse2	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
24-Moorehouse2	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
24-Moorehouse2	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
24-Moorehouse2	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	
25-Moorehouse3	2011	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
25-Moorehouse3	2012	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
25-Moorehouse3	2013	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
25-Moorehouse3	2014	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
25-Moorehouse3	2015	Fescue pasture maint	4.0 Ton	120	0	0	152	72	208	
26-M-Vest	2011	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
26-M-Vest	2011	Corn silage	25.0 Ton	150	0	0	208	90	208	
26-M-Vest	2012	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
26-M-Vest	2012	Corn silage	25.0 Ton	150	0	0	208	90	208	
26-M-Vest	2013	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source
26-M-Vest	2013	Corn silage	25.0 Ton	150	0	0	208	90	208	
26-M-Vest	2014	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
26-M-Vest	2014	Corn silage	25.0 Ton	150	0	0	208	90	208	
26-M-Vest	2015	Sm grain spring hay*	6.0 Ton	105	0	0	150	42	186	
26-M-Vest	2015	Corn silage	25.0 Ton	150	0	0	208	90	208	

**first crop in double-crop system-(hay =silage for planning purposes.).*

[a] *Custom fertilizer recommendation.*

6.6. Manure Application Planning Calendar – October 2010 through September 2011

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2011 Crop (Prev. Primary Crop)	Oct '10	Nov '10	Dec '10	Jan '11	Feb '11	Mar '11	Apr '11	May '11	Jun '11	Jul '11	Aug '11	Sep '11
1H-Alfalfa	21.1	21.1	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
2H-BridgeBottom	42.1	41.6	Toccoa L (To 0-4%)	Corn silage (Corn silage)								X				
3H-Donnies	24.8	24.2	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
4H-Hoss 1	7.1	6.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								X				
5H-Hoss 2	23.0	16.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								X				
6H-Leach	19.6	19.2	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
7H-Presswood 2	18.6	18.6	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)										X		
8H-Presswood	18.9	18.9	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)								X				X
9H-Red-Hill	15.9	15.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
10H-Taylor-Bott	49.7	49.1	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)												
11H-Tree-Bottom	35.5	35.5	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)								X				
13-H-4	5.6	5.0	Waynesboro L (WbC2 5-12%)	Grass-clover hay maint (Grass-clover hay maint)												
14-H-6	49.2	49.2	Minvale GR-SIL (MnD 12-25%)	Fescue pasture maint (Fescue pasture maint)												X
15-H-9	10.6	9.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)								5.0				5.8
16-H-10	33.4	32.8	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
17-H-15	43.9	43.9	Decatur SIL (DeD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
18-H-18	64.0	63.3	Minvale GR-SIL (MnC 5-12%)	Fescue pasture maint (Fescue pasture maint)												
19-H-19	52.1	45.0	Waynesboro L (WbC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
20-H-21	40.9	40.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
21-MAirporthil	48.1	45.4	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												X
22-M-Lawson	91.3	91.3	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2011 Crop (Prev. Primary Crop)	Oct '10	Nov '10	Dec '10	Jan '11	Feb '11	Mar '11	Apr '11	May '11	Jun '11	Jul '11	Aug '11	Sep '11
23-Moorehouse1	53.9	53.9	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				
24-Moorehouse2	30.5	29.7	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				
25-Moorehouse3	48.5	44.2	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												X
26-M-Vest	11.4	10.0	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								X				
Total	*859.7*	*832.4*										*5.0 X*		*X*		*5.8 X*

Crop in field

No. indicates total loads
"X" indicates other manure apps

Manure Application Planning Calendar – October 2011 through September 2012

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2012 Crop (Prev. Primary Crop)	Oct '11	Nov '11	Dec '11	Jan '12	Feb '12	Mar '12	Apr '12	May '12	Jun '12	Jul '12	Aug '12	Sep '12
1H-Alfalfa	21.1	21.1	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
2H-BridgeBottom	42.1	41.6	Toccoa L (To 0-4%)	Corn silage (Corn silage)								X				
3H-Donnies	24.8	24.2	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
4H-Hoss 1	7.1	6.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								X				
5H-Hoss 2	23.0	16.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								X				
6H-Leach	19.6	19.2	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												X
7H-Presswood 2	18.6	18.6	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												X
8H-Presswood	18.9	18.9	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)												
9H-Red-Hill	15.9	15.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
10H-Taylor-Bott	49.7	49.1	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)								X				
11H-Tree-Bottom	35.5	35.5	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)								X				
13-H-4	5.6	5.0	Waynesboro L (WbC2 5-12%)	Grass-clover hay maint (Grass-clover hay maint)	3.0											
14-H-6	49.2	49.2	Minvale GR-SIL (MnD 12-25%)	Fescue pasture maint (Fescue pasture maint)							32.9					X
15-H-9	10.6	9.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)						5.0						
16-H-10	33.4	32.8	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)	21.9									16.4		
17-H-15	43.9	43.9	Decatur SIL (DeD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
18-H-18	64.0	63.3	Minvale GR-SIL (MnC 5-12%)	Fescue pasture maint (Fescue pasture maint)												
19-H-19	52.1	45.0	Waynesboro L (WbC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										22.5		
20-H-21	40.9	40.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)						13.7						
21-MAirporthil	48.1	45.4	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
22-M-Lawson	91.3	91.3	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2012 Crop (Prev. Primary Crop)	Oct '11	Nov '11	Dec '11	Jan '12	Feb '12	Mar '12	Apr '12	May '12	Jun '12	Jul '12	Aug '12	Sep '12
23-Moorehouse1	53.9	53.9	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				
24-Moorehouse2	30.5	29.7	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				
25-Moorehouse3	48.5	44.2	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
26-M-Vest	11.4	10.0	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								6.7 X				
Total	*859.7*	*832.4*			*24.9*					*18.7*	*32.9*	*6.7 X*		*38.9*		*X*

Crop in field	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – October 2012 through September 2013

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2013 Crop (Prev. Primary Crop)	Oct '12	Nov '12	Dec '12	Jan '13	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13	Aug '13	Sep '13
1H-Alfalfa	21.1	21.1	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
2H-BridgeBottom	42.1	41.6	Toccoa L (To 0-4%)	Corn silage (Corn silage)								X				
3H-Donnies	24.8	24.2	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)	X											X
4H-Hoss 1	7.1	6.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)	X											X
5H-Hoss 2	23.0	16.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)	X											X
6H-Leach	19.6	19.2	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
7H-Presswood 2	18.6	18.6	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
8H-Presswood	18.9	18.9	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)	X											12.6
9H-Red-Hill	15.9	15.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
10H-Taylor-Bott	49.7	49.1	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)	X											X
11H-Tree-Bottom	35.5	35.5	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)	X											23.7
13-H-4	5.6	5.0	Waynesboro L (WbC2 5-12%)	Grass-clover hay maint (Grass-clover hay maint)												
14-H-6	49.2	49.2	Minvale GR-SIL (MnD 12-25%)	Fescue pasture maint (Fescue pasture maint)												
15-H-9	10.6	9.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												6.6
16-H-10	33.4	32.8	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
17-H-15	43.9	43.9	Decatur SIL (DeD2 12-20%)	Fescue pasture maint (Fescue pasture maint)												
18-H-18	64.0	63.3	Minvale GR-SIL (MnC 5-12%)	Fescue pasture maint (Fescue pasture maint)												
19-H-19	52.1	45.0	Waynesboro L (WbC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
20-H-21	40.9	40.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
21-MAirporthil	48.1	45.4	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)										X		
22-M-Lawson	91.3	91.3	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				X

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2013 Crop (Prev. Primary Crop)	Oct '12	Nov '12	Dec '12	Jan '13	Feb '13	Mar '13	Apr '13	May '13	Jun '13	Jul '13	Aug '13	Sep '13
23-Moorehouse1	53.9	53.9	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				
24-Moorehouse2	30.5	29.7	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				X
25-Moorehouse3	48.5	44.2	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)										X		
26-M-Vest	11.4	10.0	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								X				
Total	*859.7*	*832.4*			*X*							*X*		*X*		*42.9 X*

Crop in field	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – October 2013 through September 2014

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2014 Crop (Prev. Primary Crop)	Oct '13	Nov '13	Dec '13	Jan '14	Feb '14	Mar '14	Apr '14	May '14	Jun '14	Jul '14	Aug '14	Sep '14
1H-Alfalfa	21.1	21.1	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
2H-BridgeBottom	42.1	41.6	Toccoa L (To 0-4%)	Corn silage (Corn silage)								X				
3H-Donnies	24.8	24.2	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
4H-Hoss 1	7.1	6.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)												
5H-Hoss 2	23.0	16.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)												
6H-Leach	19.6	19.2	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												X
7H-Presswood 2	18.6	18.6	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												X
8H-Presswood	18.9	18.9	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)								X				26.2
9H-Red-Hill	15.9	15.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)								X				
10H-Taylor-Bott	49.7	49.1	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)												
11H-Tree-Bottom	35.5	35.5	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)												X
13-H-4	5.6	5.0	Waynesboro L (WbC2 5-12%)	Grass-clover hay maint (Grass-clover hay maint)												
14-H-6	49.2	49.2	Minvale GR-SIL (MnD 12-25%)	Fescue pasture maint (Fescue pasture maint)												
15-H-9	10.6	9.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										6.6		
16-H-10	33.4	32.8	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
17-H-15	43.9	43.9	Decatur SIL (DeD2 12-20%)	Fescue pasture maint (Fescue pasture maint)										29.3		
18-H-18	64.0	63.3	Minvale GR-SIL (MnC 5-12%)	Fescue pasture maint (Fescue pasture maint)												
19-H-19	52.1	45.0	Waynesboro L (WbC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
20-H-21	40.9	40.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										27.3		
21-MAirporthil	48.1	45.4	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
22-M-Lawson	91.3	91.3	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)												

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2014 Crop (Prev. Primary Crop)	Oct '13	Nov '13	Dec '13	Jan '14	Feb '14	Mar '14	Apr '14	May '14	Jun '14	Jul '14	Aug '14	Sep '14
23-Moorehouse1	53.9	53.9	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				
24-Moorehouse2	30.5	29.7	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)												100.0
25-Moorehouse3	48.5	44.2	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
26-M-Vest	11.4	10.0	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)								X				5.9
Total	*859.7*	*832.4*										*X*		*63.2*		*132.1 X*

Crop in field	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – October 2014 through September 2015

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2015 Crop (Prev. Primary Crop)	Oct '14	Nov '14	Dec '14	Jan '15	Feb '15	Mar '15	Apr '15	May '15	Jun '15	Jul '15	Aug '15	Sep '15
1H-Alfalfa	21.1	21.1	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
2H-BridgeBottom	42.1	41.6	Toccoa L (To 0-4%)	Corn silage (Corn silage)												
3H-Donnies	24.8	24.2	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)							X					
4H-Hoss 1	7.1	6.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)							X					
5H-Hoss 2	23.0	16.9	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)							X					
6H-Leach	19.6	19.2	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
7H-Presswood 2	18.6	18.6	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
8H-Presswood	18.9	18.9	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)												
9H-Red-Hill	15.9	15.9	Decatur SIL (DeC2 5-12%)	Corn silage (Corn silage)												
10H-Taylor-Bott	49.7	49.1	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)								X				
11H-Tree-Bottom	35.5	35.5	Sequatchie SIL (SeB 2-5%)	Corn silage (Corn silage)												
13-H-4	5.6	5.0	Waynesboro L (WbC2 5-12%)	Grass-clover hay maint (Grass-clover hay maint)												
14-H-6	49.2	49.2	Minvale GR-SIL (MnD 12-25%)	Fescue pasture maint (Fescue pasture maint)										X		
15-H-9	10.6	9.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
16-H-10	33.4	32.8	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
17-H-15	43.9	43.9	Decatur SIL (DeD2 12-20%)	Fescue pasture maint (Fescue pasture maint)										X		
18-H-18	64.0	63.3	Minvale GR-SIL (MnC 5-12%)	Fescue pasture maint (Fescue pasture maint)										X		
19-H-19	52.1	45.0	Waynesboro L (WbC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
20-H-21	40.9	40.9	Decatur SIL (DeC2 5-12%)	Fescue pasture maint (Fescue pasture maint)												
21-MAirporthil	48.1	45.4	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
22-M-Lawson	91.3	91.3	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)								X				

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2015 Crop (Prev. Primary Crop)	Oct '14	Nov '14	Dec '14	Jan '15	Feb '15	Mar '15	Apr '15	May '15	Jun '15	Jul '15	Aug '15	Sep '15
23-Moorehouse1	53.9	53.9	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)							X					
24-Moorehouse2	30.5	29.7	Decatur SIL (DeB2 2-5%)	Corn silage (Corn silage)							X					
25-Moorehouse3	48.5	44.2	Waynesboro L (WbD2 12-25%)	Fescue pasture maint (Fescue pasture maint)												
26-M-Vest	11.4	10.0	Waynesboro L (WbC2 5-12%)	Corn silage (Corn silage)							X					
Total	*859.7*	*832.4*									*X*	*X*		*X*		

Crop in field	No. indicates total loads "X" indicates other manure apps

6.7. Planned Nutrient Applications (Manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
1H-Alfalfa	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	40 Gal		844 Gal	21.1	119	0	0
1H-Alfalfa	May 2011	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	168,800 Gal	21.1	108	68	127
1H-Alfalfa	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		633 Gal	21.1	90	0	0
1H-Alfalfa	May 2012	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	168,800 Gal	21.1	108	68	127
1H-Alfalfa	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		633 Gal	21.1	90	0	0
1H-Alfalfa	May 2013	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	168,800 Gal	21.1	108	68	127
1H-Alfalfa	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	25 Gal		528 Gal	21.1	75	0	0
1H-Alfalfa	May 2014	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	211,000 Gal	21.1	135	85	159
2H-BridgeBottom	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		1,248 Gal	41.6	90	0	0
2H-BridgeBottom	May 2011	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	332,800 Gal	41.6	108	68	127
2H-BridgeBottom	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		1,248 Gal	41.6	90	0	0
2H-BridgeBottom	May 2012	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	332,800 Gal	41.6	108	68	127
2H-BridgeBottom	May 2013	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	332,800 Gal	41.6	108	68	127
2H-BridgeBottom	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		1,248 Gal	41.6	90	0	0
2H-BridgeBottom	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	25 Gal		1,040 Gal	41.6	75	0	0
2H-BridgeBottom	May 2014	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	416,000 Gal	41.6	135	85	159
3H-Donnies	May 2011	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	242,000 Gal	24.2	181	224	153
3H-Donnies	May 2012	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	13,000 Gal	1 mph	314,600 Gal	24.2	185	113	212
3H-Donnies	Oct 2012	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	242,000 Gal	24.2	142	87	163
3H-Donnies	Sep 2013	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	242,000 Gal	24.2	142	87	163
3H-Donnies	Apr 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	242,000 Gal	24.2	181	224	153
4H-Hoss 1	May 2011	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	12,000 Gal	1.1 mph	80,400 Gal	6.7	170	104	196
4H-Hoss 1	May 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	69,000 Gal	6.9	181	224	153

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
4H-Hoss 1	Oct 2012	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	69,000 Gal	6.9	142	87	163
4H-Hoss 1	Sep 2013	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	69,000 Gal	6.9	142	87	163
4H-Hoss 1	Apr 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	69,000 Gal	6.9	181	224	153
5H-Hoss 2	May 2011	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	12,000 Gal	1.1 mph	200,400 Gal	16.7	170	104	196
5H-Hoss 2	May 2012	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	13,000 Gal	1 mph	219,700 Gal	16.9	185	113	212
5H-Hoss 2	Oct 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	169,000 Gal	16.9	181	224	153
5H-Hoss 2	Sep 2013	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	169,000 Gal	16.9	142	87	163
5H-Hoss 2	Apr 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	169,000 Gal	16.9	181	224	153
6H-Leach	Jul 2011	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	150,400 Gal	18.8	108	68	127
6H-Leach	Sep 2012	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	7,000 Gal	1.9 mph	134,400 Gal	19.2	94	60	111
6H-Leach	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	150 Lbs		2,880 Lbs	19.2	69	0	0
6H-Leach	Sep 2014	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	153,600 Gal	19.2	108	68	127
7H-Presswood 2	Jul 2011	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	148,800 Gal	18.6	108	68	127
7H-Presswood 2	Sep 2012	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	7,000 Gal	1.9 mph	130,200 Gal	18.6	94	60	111
7H-Presswood 2	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	150 Lbs		2,790 Lbs	18.6	69	0	0
7H-Presswood 2	Sep 2014	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	148,800 Gal	18.6	108	68	127
8H-Presswood	May 2011	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	12,000 Gal	1.1 mph	226,800 Gal	18.9	217	269	184
8H-Presswood	Sep 2011	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	151,200 Gal	18.9	108	68	127
8H-Presswood	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		567 Gal	18.9	90	0	0
8H-Presswood	Oct 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	189,000 Gal	18.9	181	224	153
8H-Presswood	Sep 2013	Sm grain spring hay	Barn 20	V Spreader Dry, Not incorporated	Custom	8 Ton	12.6 Lds	151.2 Ton	18.9	67	144	208
8H-Presswood	May 2014	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	9,000 Gal	1.5 mph	170,100 Gal	18.9	128	78	147

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
8H-Presswood	Sep 2014	Sm grain spring hay	Lagoon 2	V Spreader Liquid, Not incorporated	Custom	10,000 Gal	26.2 Lds	188,640 Gal	18.9	142	87	163
9H-Red-Hill	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	40 Gal		636 Gal	15.9	119	0	0
9H-Red-Hill	May 2011	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	127,200 Gal	15.9	108	68	127
9H-Red-Hill	May 2012	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	127,200 Gal	15.9	108	68	127
9H-Red-Hill	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		477 Gal	15.9	90	0	0
9H-Red-Hill	May 2013	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	127,200 Gal	15.9	108	68	127
9H-Red-Hill	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal		477 Gal	15.9	90	0	0
9H-Red-Hill	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	25 Gal		397 Gal	15.9	75	0	0
9H-Red-Hill	May 2014	Sm grain spring hay	Storage Pond	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	159,000 Gal	15.9	135	85	159
10H-Taylor-Bott	May 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	491,000 Gal	49.1	181	224	153
10H-Taylor-Bott	Oct 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	491,000 Gal	49.1	181	224	153
10H-Taylor-Bott	Sep 2013	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	491,000 Gal	49.1	142	87	163
10H-Taylor-Bott	May 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	11,000 Gal	1.2 mph	540,100 Gal	49.1	199	246	168
11H-Tree-Bottom	May 2011	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	355,000 Gal	35.5	181	224	153
11H-Tree-Bottom	May 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	355,000 Gal	35.5	181	224	153
11H-Tree-Bottom	Oct 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	355,000 Gal	35.5	181	224	153
11H-Tree-Bottom	Sep 2013	Sm grain spring hay	Barn 20	V Spreader Dry, Not incorporated	Custom	8 Ton	23.7 Lds	284.4 Ton	35.5	67	144	208
11H-Tree-Bottom	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	40 Gal		1,420 Gal	35.5	119	0	0
11H-Tree-Bottom	Sep 2014	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	355,000 Gal	35.5	142	87	163
11H-Tree-Bottom	Sep 2014	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	284,000 Gal	35.5	145	179	122
13-H-4	Oct 2011	Grass-clover hay maint	Calf pens	V Spreader Dry, Not incorporated	Custom	7 Ton	3 Lds	36 Ton	5.1	59	126	182
14-H-6	Sep 2011	Fescue pasture maint	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	393,600 Gal	49.2	114	70	130
14-H-6	Apr 2012	Fescue pasture maint	Barn 20	V Spreader Dry, Not incorporated	Custom	8 Ton	32.9 Lds	394.8 Ton	49.3	67	144	208

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
14-H-6	Sep 2012	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	392,800 Gal	49.1	108	68	127
14-H-6	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	100 Lbs		4,920 Lbs	49.2	46	0	0
14-H-6	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		9,840 Lbs	49.2	92	0	0
14-H-6	Jul 2015	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	393,600 Gal	49.2	108	68	127
15-H-9	May 2011	Fescue pasture maint	Calf pens	V Spreader Dry, Not incorporated	Custom	6 Ton	5 Lds	60 Ton	10.0	50	108	156
15-H-9	Sep 2011	Fescue pasture maint	Calf pens	V Spreader Dry, Not incorporated	Custom	7 Ton	5.8 Lds	69.6 Ton	9.9	59	126	182
15-H-9	Mar 2012	Fescue pasture maint	Calf pens	V Spreader Dry, Not incorporated	Custom	6 Ton	5 Lds	60 Ton	10.0	50	108	156
15-H-9	Sep 2013	Fescue pasture maint	Calf pens	V Spreader Dry, Not incorporated	Custom	8 Ton	6.6 Lds	79.2 Ton	9.9	67	144	208
15-H-9	Jul 2014	Fescue pasture maint	Calf pens	V Spreader Dry, Not incorporated	Custom	8 Ton	6.6 Lds	79.2 Ton	9.9	67	144	208
15-H-9	Jul 2015	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	79,200 Gal	9.9	108	68	127
16-H-10	Oct 2011	Fescue pasture maint	Barn 20	V Spreader Dry, Not incorporated	Custom	8 Ton	21.9 Lds	262.8 Ton	32.8	67	144	208
16-H-10	Jul 2012	Fescue pasture maint	Calf pens	V Spreader Dry, Not incorporated	Custom	6 Ton	16.4 Lds	196.8 Ton	32.8	50	108	156
16-H-10	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	100 Lbs		3,280 Lbs	32.8	46	0	0
16-H-10	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		6,560 Lbs	32.8	92	0	0
16-H-10	Jul 2015	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	262,400 Gal	32.8	108	68	127
17-H-15	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		8,780 Lbs	43.9	92	0	0
17-H-15	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		8,780 Lbs	43.9	92	0	0
17-H-15	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	100 Lbs		4,390 Lbs	43.9	46	0	0
17-H-15	Jul 2014	Fescue pasture maint	Barn 20	V Spreader Dry, Not incorporated	Custom	8 Ton	29.3 Lds	351.6 Ton	44.0	67	144	208
17-H-15	Jul 2015	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	351,200 Gal	43.9	108	68	127
18-H-18	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		12,660 Lbs	63.3	92	0	0
18-H-18	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	100 Lbs		6,330 Lbs	63.3	46	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
18-H-18	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		12,660 Lbs	63.3	92	0	0
18-H-18	Jul 2015	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	506,400 Gal	63.3	108	68	127
19-H-19	Jul 2011	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	360,000 Gal	45.0	108	68	127
19-H-19	Jul 2012	Fescue pasture maint	Barn 20	V Spreader Dry, Not incorporated	Custom	6 Ton	22.5 Lds	270 Ton	45.0	50	108	156
19-H-19	Jul 2013	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	7,000 Gal	1.9 mph	315,000 Gal	45.0	94	60	111
19-H-19	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		9,000 Lbs	45.0	92	0	0
20-H-21	Jul 2011	Fescue pasture maint	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	327,200 Gal	40.9	114	70	130
20-H-21	Mar 2012	Fescue pasture maint	Barn 20	V Spreader Dry, Not incorporated	Custom	4 Ton	13.7 Lds	164.4 Ton	41.1	34	72	104
20-H-21	Jul 2013	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	7,000 Gal	1.9 mph	286,300 Gal	40.9	94	60	111
20-H-21	Jul 2014	Fescue pasture maint	Barn 20	V Spreader Dry, Not incorporated	Custom	8 Ton	27.3 Lds	327.6 Ton	41.0	67	144	208
21-MAirporthil	Sep 2011	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	362,880 Gal	45.4	108	68	127
21-MAirporthil	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	100 Lbs		4,540 Lbs	45.4	46	0	0
21-MAirporthil	Jul 2013	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	7,000 Gal	1.9 mph	317,800 Gal	45.4	94	60	111
21-MAirporthil	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		9,080 Lbs	45.4	92	0	0
22-M-Lawson	May 2011	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	12,000 Gal	1.1 mph	1,095,600 Gal	91.3	217	269	184
22-M-Lawson	May 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	913,000 Gal	91.3	181	224	153
22-M-Lawson	May 2013	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	13,000 Gal	1 mph	1,186,900 Gal	91.3	185	113	212
22-M-Lawson	Sep 2013	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	913,000 Gal	91.3	181	224	153
22-M-Lawson	May 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	913,000 Gal	91.3	181	224	153
23-Moorehouse1	May 2011	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	12,000 Gal	1.1 mph	646,800 Gal	53.9	217	269	184
23-Moorehouse1	May 2012	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	13,000 Gal	1 mph	700,700 Gal	53.9	185	113	212
23-Moorehouse1	May 2013	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	13,000 Gal	1 mph	700,700 Gal	53.9	185	113	212

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
23-Moorehouse1	May 2014	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	539,000 Gal	53.9	181	224	153
23-Moorehouse1	Apr 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	539,000 Gal	53.9	181	224	153
24-Moorehouse2	May 2011	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	12,000 Gal	1.1 mph	354,000 Gal	29.5	170	104	196
24-Moorehouse2	May 2012	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	297,000 Gal	29.7	181	224	153
24-Moorehouse2	May 2013	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	297,000 Gal	29.7	181	224	153
24-Moorehouse2	Sep 2013	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	297,000 Gal	29.7	142	87	163
24-Moorehouse2	Sep 2014	Sm grain spring hay	Barn 20	V Spreader Dry, incorp. w/in 1 day(s)	Custom	7 Ton	17.4 Lds	208.8 Ton	29.8	59	126	182
24-Moorehouse2	Sep 2014	Sm grain spring hay	Lagoon 2	V Spreader Liquid, Not incorporated	Custom	10,000 Gal	41.3 Lds	297,000 Gal	29.7	142	87	163
24-Moorehouse2	Sep 2014	Sm grain spring hay	Lagoon 2	V Spreader Liquid, Not incorporated	Custom	10,000 Gal	41.3 Lds	297,000 Gal	29.7	142	87	163
24-Moorehouse2	Apr 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	296,000 Gal	29.6	181	224	153
25-Moorehouse3	Sep 2011	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	353,520 Gal	44.2	108	68	127
25-Moorehouse3	Jul 2013	Fescue pasture maint	Storage Pond	Drag Hose-surface, Not incorporated	Custom	7,000 Gal	1.9 mph	309,400 Gal	44.2	94	60	111
25-Moorehouse3	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs		8,840 Lbs	44.2	92	0	0
26-M-Vest	May 2011	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	12,000 Gal	1.1 mph	120,000 Gal	10.0	217	269	184
26-M-Vest	May 2012	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	8,000 Gal	1.6 mph	79,200 Gal	9.9	114	70	130
26-M-Vest	May 2012	Sm grain spring hay	Barn 20	V Spreader Dry, incorp. w/in 1 day(s)	Custom	8 Ton	6.7 Lds	80.4 Ton	10.1	67	144	208
26-M-Vest	May 2013	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	100,000 Gal	10.0	181	224	153
26-M-Vest	May 2014	Sm grain spring hay	Lagoon 2	Drag Hose-surface, Not incorporated	Custom	13,000 Gal	1 mph	130,000 Gal	10.0	185	113	212
26-M-Vest	Sep 2014	Sm grain spring hay	Barn 20	V Spreader Dry, Not incorporated	Custom	7 Ton	5.9 Lds	70.8 Ton	10.1	59	126	182
26-M-Vest	Apr 2015	Sm grain spring hay	Lagoon 1	Drag Hose-surface, Not incorporated	Custom	10,000 Gal	1.3 mph	99,000 Gal	9.9	181	224	153

Planned Nutrient Applications (Non-manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
2H-BridgeBottom	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	30 Gal	0.5	179	0	0
2H-BridgeBottom	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal	15 Gal	0.5	90	0	0
2H-BridgeBottom	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	50 Gal	25 Gal	0.5	149	0	0
2H-BridgeBottom	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	30 Gal	15 Gal	0.5	90	0	0
2H-BridgeBottom	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	50 Gal	25 Gal	0.5	149	0	0
2H-BridgeBottom	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	30 Gal	0.5	179	0	0
3H-Donnies	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
3H-Donnies	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
3H-Donnies	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
3H-Donnies	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
4H-Hoss 1	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	12 Gal	0.2	179	0	0
4H-Hoss 1	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	12 Gal	0.2	179	0	0
4H-Hoss 1	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	12 Gal	0.2	179	0	0
4H-Hoss 1	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	12 Gal	0.2	179	0	0
5H-Hoss 2	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	366 Gal	6.1	179	0	0
5H-Hoss 2	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	366 Gal	6.1	179	0	0
5H-Hoss 2	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	366 Gal	6.1	179	0	0
5H-Hoss 2	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	366 Gal	6.1	179	0	0
6H-Leach	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	80 Lbs	0.4	92	0	0
6H-Leach	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	80 Lbs	0.4	92	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
6H-Leach	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	80 Lbs	0.4	92	0	0
10H-Taylor-Bott	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
10H-Taylor-Bott	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
10H-Taylor-Bott	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
10H-Taylor-Bott	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	36 Gal	0.6	179	0	0
15-H-9	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	140 Lbs	0.7	92	0	0
15-H-9	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	140 Lbs	0.7	92	0	0
15-H-9	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	140 Lbs	0.7	92	0	0
16-H-10	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	120 Lbs	0.6	92	0	0
16-H-10	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	120 Lbs	0.6	92	0	0
16-H-10	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	120 Lbs	0.6	92	0	0
18-H-18	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	140 Lbs	0.7	92	0	0
18-H-18	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	140 Lbs	0.7	92	0	0
18-H-18	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	140 Lbs	0.7	92	0	0
19-H-19	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	1,420 Lbs	7.1	92	0	0
19-H-19	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	1,420 Lbs	7.1	92	0	0
19-H-19	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	1,420 Lbs	7.1	92	0	0
21-MAirporthil	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	100 Lbs	270 Lbs	2.7	46	0	0
21-MAirporthil	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	540 Lbs	2.7	92	0	0
21-MAirporthil	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	540 Lbs	2.7	92	0	0
24-Moorehouse2	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	48 Gal	0.8	179	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)
24-Moorehouse2	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	48 Gal	0.8	179	0	0
24-Moorehouse2	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	48 Gal	0.8	179	0	0
24-Moorehouse2	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	48 Gal	0.8	179	0	0
25-Moorehouse3	May 2012	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	860 Lbs	4.3	92	0	0
25-Moorehouse3	May 2013	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	860 Lbs	4.3	92	0	0
25-Moorehouse3	May 2014	Fescue pasture maint	46-0-0	Surface broadcast	Custom	200 Lbs	860 Lbs	4.3	92	0	0
26-M-Vest	May 2011	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	84 Gal	1.4	179	0	0
26-M-Vest	May 2012	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	84 Gal	1.4	179	0	0
26-M-Vest	May 2013	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	84 Gal	1.4	179	0	0
26-M-Vest	May 2014	Sm grain spring hay	28-0-0	Surface broadcast	Custom	60 Gal	84 Gal	1.4	179	0	0

6.8. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2011	1H-Alfalfa	21.1	Sm grain spring hay	6	105	0	0								
2011	1H-Alfalfa	21.1	Corn silage	25	150	0	0	227	68	127	-28	68	127	-64	-267
2012	1H-Alfalfa	21.1	Sm grain spring hay	6	105	0	0								
2012	1H-Alfalfa	21.1	Corn silage	25	150	0	0	198	68	127	-32†	136	254	-64	-267
2013	1H-Alfalfa	21.1	Sm grain spring hay	6	105	0	0								
2013	1H-Alfalfa	21.1	Corn silage	25	150	0	0	198	68	127	-22†	204	381	-64	-267
2014	1H-Alfalfa	21.1	Sm grain spring hay	6	105	0	0								
2014	1H-Alfalfa	21.1	Corn silage	25	150	0	0	210	85	159	-10†	289	540	-47	-235
2015	1H-Alfalfa	21.1	Sm grain spring hay	6	105	0	0								
2015	1H-Alfalfa	21.1	Corn silage	25	150	0	0	0	0	0	-214†	289	540	-132	-394
Total	**1H-Alfalfa**				**1275**	**0**	**0**	**833**	**289**	**540**					
2011	2H-BridgeBottom	41.6	Sm grain spring hay	6	105	0	0								
2011	2H-BridgeBottom	41.6	Corn silage	25	150	0	0	198	68	127	-57	68	127	-64	-267
2012	2H-BridgeBottom	41.6	Sm grain spring hay	6	105	0	0								
2012	2H-BridgeBottom	41.6	Corn silage	25	150	0	0	198	68	127	-32†	136	254	-64	-267
2013	2H-BridgeBottom	41.6	Sm grain spring hay	6	105	0	0								
2013	2H-BridgeBottom	41.6	Corn silage	25	150	0	0	198	68	127	-22†	204	381	-64	-267
2014	2H-BridgeBottom	41.6	Sm grain spring hay	6	105	0	0								
2014	2H-BridgeBottom	41.6	Corn silage	25	150	0	0	210	85	159	-10†	289	540	-47	-235
2015	2H-BridgeBottom	41.6	Sm grain spring hay	6	105	0	0								
2015	2H-BridgeBottom	41.6	Corn silage	25	150	0	0	0	0	0	-214†	289	540	-132	-394
Total	**2H-BridgeBottom**				**1275**	**0**	**0**	**804**	**289**	**540**					
2011	3H-Donnies	24.2	Sm grain spring hay	6	105	0	0								
2011	3H-Donnies	24.2	Corn silage	25	150	0	0	181	224	153	-74	224	153	92	-241
2012	3H-Donnies	24.2	Sm grain spring hay	6	105	0	0								
2012	3H-Donnies	24.2	Corn silage	25	150	0	0	185	113	212	-28†	337	365	73	-182
2013	3H-Donnies	24.2	Sm grain spring hay	6	105	0	0								
2013	3H-Donnies	24.2	Corn silage	25	150	0	0	142	87	163	-55†	424	528	28	-231
2014	3H-Donnies	24.2	Sm grain spring hay	6	105	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2014	3H-Donnies	24.2	Corn silage	25	150	0	0	142	87	163	-65†	511	691	-17	-231
2015	3H-Donnies	24.2	Sm grain spring hay	6	105	0	0								
2015	3H-Donnies	24.2	Corn silage	25	150	0	0	181	224	153	-30†	735	844	92	-241
Total	**3H-Donnies**				**1275**	**0**	**0**	**831**	**735**	**844**					
2011	4H-Hoss 1	6.9	Sm grain spring hay	6	105	0	0								
2011	4H-Hoss 1	6.9	Corn silage	25	150	0	0	165	101	190	-90	101	190	-31	-204
2012	4H-Hoss 1	6.9	Sm grain spring hay	6	105	0	0								
2012	4H-Hoss 1	6.9	Corn silage	25	150	0	0	181	224	153	-37†	325	343	92	-241
2013	4H-Hoss 1	6.9	Sm grain spring hay	6	105	0	0								
2013	4H-Hoss 1	6.9	Corn silage	25	150	0	0	142	87	163	-57†	412	506	47	-231
2014	4H-Hoss 1	6.9	Sm grain spring hay	6	105	0	0								
2014	4H-Hoss 1	6.9	Corn silage	25	150	0	0	142	87	163	-65†	499	669	2	-231
2015	4H-Hoss 1	6.9	Sm grain spring hay	6	105	0	0								
2015	4H-Hoss 1	6.9	Corn silage	25	150	0	0	181	224	153	-30†	723	822	94	-241
Total	**4H-Hoss 1**				**1275**	**0**	**0**	**811**	**723**	**822**					
2011	5H-Hoss 2	16.9	Sm grain spring hay	6	105	0	40								
2011	5H-Hoss 2	16.9	Corn silage	25	150	0	160	168	103	194	-87	103	-6	-29	-200
2012	5H-Hoss 2	16.9	Sm grain spring hay	6	105	0	40								
2012	5H-Hoss 2	16.9	Corn silage	25	150	0	160	185	113	212	-32†	216	12	-19	-182
2013	5H-Hoss 2	16.9	Sm grain spring hay	6	105	0	40								
2013	5H-Hoss 2	16.9	Corn silage	25	150	0	160	181	224	153	-18†	440	-35	92	-241
2014	5H-Hoss 2	16.9	Sm grain spring hay	6	105	0	40								
2014	5H-Hoss 2	16.9	Corn silage	25	150	0	160	142	87	163	-55†	527	-37	47	-231
2015	5H-Hoss 2	16.9	Sm grain spring hay	6	105	0	40								
2015	5H-Hoss 2	16.9	Corn silage	25	150	0	160	181	224	153	-26†	751	-47	139	-241
Total	**5H-Hoss 2**				**1275**	**0**	**1000**	**857**	**751**	**875**					
2011	6H-Leach	19.2	Fescue pasture maint	4	120	0	0	106	67	124	-14	67	124	-5	-84
2012	6H-Leach	19.2	Fescue pasture maint	4	120	0	0	94	60	111	-2†	127	235	-12	-97
2013	6H-Leach	19.2	Fescue pasture maint	4	120	0	0	69	0	0	-19†	127	235	-72	-208
2014	6H-Leach	19.2	Fescue pasture maint	4	120	0	0	108	68	127	-4†	195	362	-4	-81

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2015	6H-Leach	19.2	Fescue pasture maint	4	120	0	0	0	0	0	-95†	195	362	-72	-208
Total	**6H-Leach**				**600**	**0**	**0**	**377**	**195**	**362**					
2011	7H-Presswood 2	18.6	Fescue pasture maint	4	120	0	0	108	68	127	-12	68	127	-4	-81
2012	7H-Presswood 2	18.6	Fescue pasture maint	4	120	0	0	94	60	111	-1†	128	238	-12	-97
2013	7H-Presswood 2	18.6	Fescue pasture maint	4	120	0	0	69	0	0	-19†	128	238	-72	-208
2014	7H-Presswood 2	18.6	Fescue pasture maint	4	120	0	0	108	68	127	-4†	196	365	-4	-81
2015	7H-Presswood 2	18.6	Fescue pasture maint	4	120	0	0	0	0	0	-95†	196	365	-72	-208
Total	**7H-Presswood 2**				**600**	**0**	**0**	**379**	**196**	**365**					
2011	8H-Presswood	18.9	Sm grain spring hay	4	105	0	40								
2011	8H-Presswood	18.9	Corn silage	25	150	0	160	217	269	184	-38	269	-16	151	-148
2012	8H-Presswood	18.9	Sm grain spring hay	4	105	0	40								
2012	8H-Presswood	18.9	Corn silage	25	150	0	160	198	68	127	-7†	337	-73	101	-205
2013	8H-Presswood	18.9	Sm grain spring hay	4	105	0	40								
2013	8H-Presswood	18.9	Corn silage	25	150	0	160	181	224	153	-30†	561	-47	207	-179
2014	8H-Presswood	18.9	Sm grain spring hay	4	105	0	40								
2014	8H-Presswood	18.9	Corn silage	25	150	0	160	195	222	355	-8†	783	155	311	23
2015	8H-Presswood	18.9	Sm grain spring hay	4	105	0	40								
2015	8H-Presswood	18.9	Corn silage	25	150	0	160	142	87	163	-54†	870	118	280	-146
Total	**8H-Presswood**				**1275**	**0**	**1000**	**933**	**870**	**982**					
2011	9H-Red-Hill	15.9	Sm grain spring hay	6	105	0	0								
2011	9H-Red-Hill	15.9	Corn silage	25	150	0	0	227	68	127	-28	68	127	-64	-267
2012	9H-Red-Hill	15.9	Sm grain spring hay	6	105	0	0								
2012	9H-Red-Hill	15.9	Corn silage	25	150	0	0	198	68	127	-32†	136	254	-64	-267
2013	9H-Red-Hill	15.9	Sm grain spring hay	6	105	0	0								
2013	9H-Red-Hill	15.9	Corn silage	25	150	0	0	198	68	127	-22†	204	381	-64	-267
2014	9H-Red-Hill	15.9	Sm grain spring hay	6	105	0	0								
2014	9H-Red-Hill	15.9	Corn silage	25	150	0	0	210	85	159	-10†	289	540	-47	-235
2015	9H-Red-Hill	15.9	Sm grain spring hay	6	105	0	0								
2015	9H-Red-Hill	15.9	Corn silage	25	150	0	0	0	0	0	-214†	289	540	-132	-394
Total	**9H-Red-Hill**				**1275**	**0**	**0**	**833**	**289**	**540**					

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2011	10H-Taylor-Bott	49.1	Sm grain spring hay	6	105	0	0								
2011	10H-Taylor-Bott	49.1	Corn silage	25	150	0	0	0	0	0	-255	0	0	-132	-394
2012	10H-Taylor-Bott	49.1	Sm grain spring hay	6	105	0	0								
2012	10H-Taylor-Bott	49.1	Corn silage	25	150	0	0	181	224	153	-74	224	153	92	-241
2013	10H-Taylor-Bott	49.1	Sm grain spring hay	6	105	0	0								
2013	10H-Taylor-Bott	49.1	Corn silage	25	150	0	0	181	224	153	-32†	448	306	184	-241
2014	10H-Taylor-Bott	49.1	Sm grain spring hay	6	105	0	0								
2014	10H-Taylor-Bott	49.1	Corn silage	25	150	0	0	142	87	163	-55†	535	469	139	-231
2015	10H-Taylor-Bott	49.1	Sm grain spring hay	6	105	0	0								
2015	10H-Taylor-Bott	49.1	Corn silage	25	150	0	0	199	246	168	-8†	781	637	253	-226
Total	**10H-Taylor-Bott**				**1275**	**0**	**0**	**703**	**781**	**637**					
2011	11H-Tree-Bottom	35.5	Sm grain spring hay	6	105	0	0								
2011	11H-Tree-Bottom	35.5	Corn silage	25	150	0	0	181	224	153	-74	224	153	92	-241
2012	11H-Tree-Bottom	35.5	Sm grain spring hay	6	105	0	0								
2012	11H-Tree-Bottom	35.5	Corn silage	25	150	0	0	181	224	153	-32†	448	306	184	-241
2013	11H-Tree-Bottom	35.5	Sm grain spring hay	6	105	0	0								
2013	11H-Tree-Bottom	35.5	Corn silage	25	150	0	0	181	224	153	-16†	672	459	276	-241
2014	11H-Tree-Bottom	35.5	Sm grain spring hay	6	105	0	0								
2014	11H-Tree-Bottom	35.5	Corn silage	25	150	0	0	186	144	208	-11†	816	667	288	-186
2015	11H-Tree-Bottom	35.5	Sm grain spring hay	6	105	0	0								
2015	11H-Tree-Bottom	35.5	Corn silage	25	150	0	0	287	266	285	62†	1,082	952	422	-109
Total	**11H-Tree-Bottom**				**1275**	**0**	**0**	**1016**	**1082**	**952**					
2011	13-H-4	5.0	Grass-clover hay maint	4	60	0	0	0	0	0	-60	0	0	-60	-240
2012	13-H-4	5.0	Grass-clover hay maint	4	60	0	0	60	129	186	0	129	186	69	-54
2013	13-H-4	5.0	Grass-clover hay maint	4	60	0	0	0	0	0	-48†	129	186	9	-240
2014	13-H-4	5.0	Grass-clover hay maint	4	60	0	0	0	0	0	-55†	129	186	-51	-240
2015	13-H-4	5.0	Grass-clover hay maint	4	60	0	0	0	0	0	-60	129	186	-60	-240
Total	**13-H-4**				**300**	**0**	**0**	**60**	**129**	**186**					
2011	14-H-6	49.2	Fescue pasture maint	4	120	0	0	114	70	130	-6	70	130	-2	-78
2012	14-H-6	49.2	Fescue pasture maint	4	120	0	0	175	212	335	81†	282	465	140	127

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2013	14-H-6	49.2	Fescue pasture maint	4	120	0	0	46	0	0	-25†	282	465	68	-81
2014	14-H-6	49.2	Fescue pasture maint	4	120	0	0	92	0	0	-12†	282	465	-4	-208
2015	14-H-6	49.2	Fescue pasture maint	4	120	0	0	108	68	127	-12	350	592	-4	-81
Total	**14-H-6**				**600**	**0**	**0**	**535**	**350**	**592**					
2011	15-H-9	9.9	Fescue pasture maint	4	120	0	0	109	235	340	-11	235	340	163	132
2012	15-H-9	9.9	Fescue pasture maint	4	120	0	0	51	109	158	-47†	344	498	200	82
2013	15-H-9	9.9	Fescue pasture maint	4	120	0	0	67	144	208	-34†	488	706	272	82
2014	15-H-9	9.9	Fescue pasture maint	4	120	0	0	67	144	208	-35†	632	914	344	82
2015	15-H-9	9.9	Fescue pasture maint	4	120	0	0	108	68	127	8†	700	1,041	340	1
Total	**15-H-9**				**600**	**0**	**0**	**402**	**700**	**1041**					
2011	16-H-10	32.8	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	16-H-10	32.8	Fescue pasture maint	4	120	0	0	117	252	364	-3	252	364	180	156
2013	16-H-10	32.8	Fescue pasture maint	4	120	0	0	46	0	0	-50†	252	364	108	-52
2014	16-H-10	32.8	Fescue pasture maint	4	120	0	0	92	0	0	-18†	252	364	36	-208
2015	16-H-10	32.8	Fescue pasture maint	4	120	0	0	108	68	127	-12	320	491	32	-81
Total	**16-H-10**				**600**	**0**	**0**	**363**	**320**	**491**					
2011	17-H-15	43.9	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	17-H-15	43.9	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	17-H-15	43.9	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2014	17-H-15	43.9	Fescue pasture maint	4	120	0	0	113	144	208	-7	144	208	72	0
2015	17-H-15	43.9	Fescue pasture maint	4	120	0	0	108	68	127	2†	212	335	68	-81
Total	**17-H-15**				**600**	**0**	**0**	**405**	**212**	**335**					
2011	18-H-18	63.3	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	18-H-18	63.3	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	18-H-18	63.3	Fescue pasture maint	4	120	0	0	46	0	0	-74	0	0	-72	-208
2014	18-H-18	63.3	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2015	18-H-18	63.3	Fescue pasture maint	4	120	0	0	108	68	127	-12	68	127	-4	-81
Total	**18-H-18**				**600**	**0**	**0**	**338**	**68**	**127**					
2011	19-H-19	45.0	Fescue pasture maint	4	120	0	0	108	68	127	-12	68	127	-4	-81
2012	19-H-19	45.0	Fescue pasture maint	4	120	0	0	50	108	156	-45†	176	283	36	-52

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2013	19-H-19	45.0	Fescue pasture maint	4	120	0	0	94	60	111	-6†	236	394	24	-97
2014	19-H-19	45.0	Fescue pasture maint	4	120	0	0	92	0	0	-2†	236	394	-48	-208
2015	19-H-19	45.0	Fescue pasture maint	4	120	0	0	0	0	0	-112†	236	394	-72	-208
Total	**19-H-19**				**600**	**0**	**0**	**344**	**236**	**394**					
2011	20-H-21	40.9	Fescue pasture maint	4	120	0	0	114	70	130	-6	70	130	-2	-78
2012	20-H-21	40.9	Fescue pasture maint	4	120	0	0	34	72	104	-60†	142	234	0	-104
2013	20-H-21	40.9	Fescue pasture maint	4	120	0	0	94	60	111	-9†	202	345	-12	-97
2014	20-H-21	40.9	Fescue pasture maint	4	120	0	0	67	144	209	-28†	346	554	72	1
2015	20-H-21	40.9	Fescue pasture maint	4	120	0	0	0	0	0	-98†	346	554	0	-207
Total	**20-H-21**				**600**	**0**	**0**	**309**	**346**	**554**					
2011	21-MAirporthil	45.4	Fescue pasture maint	4	120	30	60	108	68	127	-12	38	67	-4	-81
2012	21-MAirporthil	45.4	Fescue pasture maint	4	120	30	60	46	0	0	-49†	8	7	-72	-208
2013	21-MAirporthil	45.4	Fescue pasture maint	4	120	30	60	94	60	111	-16†	38	58	-12	-97
2014	21-MAirporthil	45.4	Fescue pasture maint	4	120	30	60	92	0	0	-6†	8	-2	-72	-208
2015	21-MAirporthil	45.4	Fescue pasture maint	4	120	30	60	0	0	0	-112†	-22	-60	-72	-208
Total	**21-MAirporthil**				**600**	**150**	**300**	**340**	**128**	**238**					
2011	22-M-Lawson	91.3	Sm grain spring hay	6	105	0	0								
2011	22-M-Lawson	91.3	Corn silage	25	150	0	0	217	269	184	-38	269	184	137	-210
2012	22-M-Lawson	91.3	Sm grain spring hay	6	105	0	0								
2012	22-M-Lawson	91.3	Corn silage	25	150	0	0	181	224	153	-24†	493	337	229	-241
2013	22-M-Lawson	91.3	Sm grain spring hay	6	105	0	0								
2013	22-M-Lawson	91.3	Corn silage	25	150	0	0	185	113	212	-9†	606	549	210	-182
2014	22-M-Lawson	91.3	Sm grain spring hay	6	105	0	0								
2014	22-M-Lawson	91.3	Corn silage	25	150	0	0	181	224	153	-16†	830	702	302	-241
2015	22-M-Lawson	91.3	Sm grain spring hay	6	105	0	0								
2015	22-M-Lawson	91.3	Corn silage	25	150	0	0	181	224	153	-16†	1,054	855	394	-241
Total	**22-M-Lawson**				**1275**	**0**	**0**	**945**	**1054**	**855**					
2011	23-Moorehouse1	53.9	Sm grain spring hay	6	105	0	0								
2011	23-Moorehouse1	53.9	Corn silage	25	150	0	0	217	269	184	-38	269	184	137	-210
2012	23-Moorehouse1	53.9	Sm grain spring hay	6	105	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2012	23-Moorehouse1	53.9	Corn silage	25	150	0	0	185	113	212	-20†	382	396	118	-182
2013	23-Moorehouse1	53.9	Sm grain spring hay	6	105	0	0								
2013	23-Moorehouse1	53.9	Corn silage	25	150	0	0	185	113	212	-9†	495	608	99	-182
2014	23-Moorehouse1	53.9	Sm grain spring hay	6	105	0	0								
2014	23-Moorehouse1	53.9	Corn silage	25	150	0	0	181	224	153	-16†	719	761	191	-241
2015	23-Moorehouse1	53.9	Sm grain spring hay	6	105	0	0								
2015	23-Moorehouse1	53.9	Corn silage	25	150	0	0	181	224	153	-16†	943	914	283	-241
Total	**23-Moorehouse1**				**1275**	**0**	**0**	**949**	**943**	**914**					
2011	24-Moorehouse2	29.7	Sm grain spring hay	6	105	0	0								
2011	24-Moorehouse2	29.7	Corn silage	25	150	0	0	169	103	195	-86	103	195	-29	-199
2012	24-Moorehouse2	29.7	Sm grain spring hay	6	105	0	0								
2012	24-Moorehouse2	29.7	Corn silage	25	150	0	0	181	224	153	-36†	327	348	92	-241
2013	24-Moorehouse2	29.7	Sm grain spring hay	6	105	0	0								
2013	24-Moorehouse2	29.7	Corn silage	25	150	0	0	181	224	153	-18†	551	501	184	-241
2014	24-Moorehouse2	29.7	Sm grain spring hay	6	105	0	0								
2014	24-Moorehouse2	29.7	Corn silage	25	150	0	0	142	87	163	-55†	638	664	139	-231
2015	24-Moorehouse2	29.7	Sm grain spring hay	6	105	0	0								
2015	24-Moorehouse2	29.7	Corn silage	25	150	0	0	524	524	661	317†	1,162	1,325	531	267
Total	**24-Moorehouse2**				**1275**	**0**	**0**	**1197**	**1162**	**1325**					
2011	25-Moorehouse3	44.2	Fescue pasture maint	4	120	0	0	108	68	127	-12	68	127	-4	-81
2012	25-Moorehouse3	44.2	Fescue pasture maint	4	120	0	0	0	0	0	-95†	68	127	-72	-208
2013	25-Moorehouse3	44.2	Fescue pasture maint	4	120	0	0	94	60	111	-16†	128	238	-12	-97
2014	25-Moorehouse3	44.2	Fescue pasture maint	4	120	0	0	92	0	0	-6†	128	238	-72	-208
2015	25-Moorehouse3	44.2	Fescue pasture maint	4	120	0	0	0	0	0	-112†	128	238	-72	-208
Total	**25-Moorehouse3**				**600**	**0**	**0**	**294**	**128**	**238**					
2011	26-M-Vest	10.0	Sm grain spring hay	6	105	0	0								
2011	26-M-Vest	10.0	Corn silage	25	150	0	0	217	269	184	-38	269	184	137	-210
2012	26-M-Vest	10.0	Sm grain spring hay	6	105	0	0								
2012	26-M-Vest	10.0	Corn silage	25	150	0	0	181	215	339	-24†	484	523	220	-55
2013	26-M-Vest	10.0	Sm grain spring hay	6	105	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2013	26-M-Vest	10.0	Corn silage	25	150	0	0	181	224	153	-15†	708	676	312	-241
2014	26-M-Vest	10.0	Sm grain spring hay	6	105	0	0								
2014	26-M-Vest	10.0	Corn silage	25	150	0	0	185	113	212	-12†	821	888	293	-182
2015	26-M-Vest	10.0	Sm grain spring hay	6	105	0	0								
2015	26-M-Vest	10.0	Corn silage	25	150	0	0	239	349	335	42†	1,170	1,223	510	-59
Total	**26-M-Vest**				**1275**	**0**	**0**	**1003**	**1170**	**1223**					

Field Nutrient Balance (Non-manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2011	2H-BridgeBottom	0.5	Sm grain spring hay	6	105	0	0								
2011	2H-BridgeBottom	0.5	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2012	2H-BridgeBottom	0.5	Sm grain spring hay	6	105	0	0								
2012	2H-BridgeBottom	0.5	Corn silage	25	150	0	0	239	0	0	-16	0	0	-132	-394
2013	2H-BridgeBottom	0.5	Sm grain spring hay	6	105	0	0								
2013	2H-BridgeBottom	0.5	Corn silage	25	150	0	0	239	0	0	-16	0	0	-132	-394
2014	2H-BridgeBottom	0.5	Sm grain spring hay	6	105	0	0								
2014	2H-BridgeBottom	0.5	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2015	2H-BridgeBottom	0.5	Sm grain spring hay	6	105	0	0								
2015	2H-BridgeBottom	0.5	Corn silage	25	150	0	0	0	0	0	-255	0	0	-132	-394
Total	**2H-BridgeBottom**				**1275**	**0**	**0**	**836**	**0**	**0**					
2011	3H-Donnies	0.6	Sm grain spring hay	6	105	0	0								
2011	3H-Donnies	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2012	3H-Donnies	0.6	Sm grain spring hay	6	105	0	0								
2012	3H-Donnies	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2013	3H-Donnies	0.6	Sm grain spring hay	6	105	0	0								
2013	3H-Donnies	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2014	3H-Donnies	0.6	Sm grain spring hay	6	105	0	0								
2014	3H-Donnies	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2015	3H-Donnies	0.6	Sm grain spring hay	6	105	0	0								
2015	3H-Donnies	0.6	Corn silage	25	150	0	0	0	0	0	-255	0	0	-132	-394
Total	**3H-Donnies**				**1275**	**0**	**0**	**716**	**0**	**0**					
2011	4H-Hoss 1	0.2	Sm grain spring hay	6	105	0	0								
2011	4H-Hoss 1	0.2	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2012	4H-Hoss 1	0.2	Sm grain spring hay	6	105	0	0								
2012	4H-Hoss 1	0.2	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2013	4H-Hoss 1	0.2	Sm grain spring hay	6	105	0	0								
2013	4H-Hoss 1	0.2	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2014	4H-Hoss 1	0.2	Sm grain spring hay	6	105	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2014	4H-Hoss 1	0.2	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2015	4H-Hoss 1	0.2	Sm grain spring hay	6	105	0	0								
2015	4H-Hoss 1	0.2	Corn silage	25	150	0	0	0	0	0	-255	0	0	-132	-394
Total	**4H-Hoss 1**				**1275**	**0**	**0**	**716**	**0**	**0**					
2011	5H-Hoss 2	6.1	Sm grain spring hay	6	105	0	40								
2011	5H-Hoss 2	6.1	Corn silage	25	150	0	160	179	0	0	-76	0	-200	-132	-394
2012	5H-Hoss 2	6.1	Sm grain spring hay	6	105	0	40								
2012	5H-Hoss 2	6.1	Corn silage	25	150	0	160	179	0	0	-76	0	-200	-132	-394
2013	5H-Hoss 2	6.1	Sm grain spring hay	6	105	0	40								
2013	5H-Hoss 2	6.1	Corn silage	25	150	0	160	179	0	0	-76	0	-200	-132	-394
2014	5H-Hoss 2	6.1	Sm grain spring hay	6	105	0	40								
2014	5H-Hoss 2	6.1	Corn silage	25	150	0	160	179	0	0	-76	0	-200	-132	-394
2015	5H-Hoss 2	6.1	Sm grain spring hay	6	105	0	40								
2015	5H-Hoss 2	6.1	Corn silage	25	150	0	160	0	0	0	-255	0	-200	-132	-394
Total	**5H-Hoss 2**				**1275**	**0**	**1000**	**716**	**0**	**0**					
2011	6H-Leach	0.4	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	6H-Leach	0.4	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	6H-Leach	0.4	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2014	6H-Leach	0.4	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2015	6H-Leach	0.4	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
Total	**6H-Leach**				**600**	**0**	**0**	**276**	**0**	**0**					
2011	10H-Taylor-Bott	0.6	Sm grain spring hay	6	105	0	0								
2011	10H-Taylor-Bott	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2012	10H-Taylor-Bott	0.6	Sm grain spring hay	6	105	0	0								
2012	10H-Taylor-Bott	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2013	10H-Taylor-Bott	0.6	Sm grain spring hay	6	105	0	0								
2013	10H-Taylor-Bott	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2014	10H-Taylor-Bott	0.6	Sm grain spring hay	6	105	0	0								
2014	10H-Taylor-Bott	0.6	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2015	10H-Taylor-Bott	0.6	Sm grain spring hay	6	105	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2015	10H-Taylor-Bott	0.6	Corn silage	25	150	0	0	0	0	0	-255	0	0	-132	-394
Total	**10H-Taylor-Bott**				**1275**	**0**	**0**	**716**	**0**	**0**					
2011	13-H-4	0.6	Grass-clover hay maint	4	60	0	0	0	0	0	-60	0	0	-60	-240
2012	13-H-4	0.6	Grass-clover hay maint	4	60	0	0	0	0	0	-60	0	0	-60	-240
2013	13-H-4	0.6	Grass-clover hay maint	4	60	0	0	0	0	0	-60	0	0	-60	-240
2014	13-H-4	0.6	Grass-clover hay maint	4	60	0	0	0	0	0	-60	0	0	-60	-240
2015	13-H-4	0.6	Grass-clover hay maint	4	60	0	0	0	0	0	-60	0	0	-60	-240
Total	**13-H-4**				**300**	**0**	**0**	**0**	**0**	**0**					
2011	15-H-9	0.7	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	15-H-9	0.7	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	15-H-9	0.7	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2014	15-H-9	0.7	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2015	15-H-9	0.7	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
Total	**15-H-9**				**600**	**0**	**0**	**276**	**0**	**0**					
2011	16-H-10	0.6	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	16-H-10	0.6	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	16-H-10	0.6	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2014	16-H-10	0.6	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2015	16-H-10	0.6	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
Total	**16-H-10**				**600**	**0**	**0**	**276**	**0**	**0**					
2011	18-H-18	0.7	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	18-H-18	0.7	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	18-H-18	0.7	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2014	18-H-18	0.7	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2015	18-H-18	0.7	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
Total	**18-H-18**				**600**	**0**	**0**	**276**	**0**	**0**					
2011	19-H-19	7.1	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	19-H-19	7.1	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	19-H-19	7.1	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2014	19-H-19	7.1	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2015	19-H-19	7.1	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
Total	**19-H-19**				**600**	**0**	**0**	**276**	**0**	**0**					
2011	21-MAirporthil	2.7	Fescue pasture maint	4	120	30	60	0	0	0	-120	-30	-60	-72	-208
2012	21-MAirporthil	2.7	Fescue pasture maint	4	120	30	60	46	0	0	-74	-30	-60	-72	-208
2013	21-MAirporthil	2.7	Fescue pasture maint	4	120	30	60	92	0	0	-28	-30	-60	-72	-208
2014	21-MAirporthil	2.7	Fescue pasture maint	4	120	30	60	92	0	0	-28	-30	-60	-72	-208
2015	21-MAirporthil	2.7	Fescue pasture maint	4	120	30	60	0	0	0	-120	-30	-60	-72	-208
Total	**21-MAirporthil**				**600**	**150**	**300**	**230**	**0**	**0**					
2011	24-Moorehouse2	0.8	Sm grain spring hay	6	105	0	0								
2011	24-Moorehouse2	0.8	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2012	24-Moorehouse2	0.8	Sm grain spring hay	6	105	0	0								
2012	24-Moorehouse2	0.8	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2013	24-Moorehouse2	0.8	Sm grain spring hay	6	105	0	0								
2013	24-Moorehouse2	0.8	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2014	24-Moorehouse2	0.8	Sm grain spring hay	6	105	0	0								
2014	24-Moorehouse2	0.8	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2015	24-Moorehouse2	0.8	Sm grain spring hay	6	105	0	0								
2015	24-Moorehouse2	0.8	Corn silage	25	150	0	0	0	0	0	-255	0	0	-132	-394
Total	**24-Moorehouse2**				**1275**	**0**	**0**	**716**	**0**	**0**					
2011	25-Moorehouse3	4.3	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
2012	25-Moorehouse3	4.3	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2013	25-Moorehouse3	4.3	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2014	25-Moorehouse3	4.3	Fescue pasture maint	4	120	0	0	92	0	0	-28	0	0	-72	-208
2015	25-Moorehouse3	4.3	Fescue pasture maint	4	120	0	0	0	0	0	-120	0	0	-72	-208
Total	**25-Moorehouse3**				**600**	**0**	**0**	**276**	**0**	**0**					
2011	26-M-Vest	1.4	Sm grain spring hay	6	105	0	0								
2011	26-M-Vest	1.4	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2012	26-M-Vest	1.4	Sm grain spring hay	6	105	0	0								
2012	26-M-Vest	1.4	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2013	26-M-Vest	1.4	Sm grain spring hay	6	105	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A
2013	26-M-Vest	1.4	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2014	26-M-Vest	1.4	Sm grain spring hay	6	105	0	0								
2014	26-M-Vest	1.4	Corn silage	25	150	0	0	179	0	0	-76	0	0	-132	-394
2015	26-M-Vest	1.4	Sm grain spring hay	6	105	0	0								
2015	26-M-Vest	1.4	Corn silage	25	150	0	0	0	0	0	-255	0	0	-132	-394
Total	**26-M-Vest**				**1275**	**0**	**0**	**716**	**0**	**0**					

[1] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[2] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[3] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P_2O_5 and K_2O, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

[4] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

[¤] Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

[a] Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

† Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

6.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Lagoon 1	Oct '10 - Sep '11	1,000,000	1,400,000	0	2,000,000	2,686,200	0	0	1,713,800	Gal
Lagoon 2	Oct '10 - Sep '11	1,200,000	1,000,000	0	0	1,355,600	0	0	844,400	Gal
Storage Pond	Oct '10 - Sep '11	800,000	3,800,000	0	0	2,155,600	0	2,000,000	444,400	Gal
Barn 20	Oct '10 - Sep '11	200	1,550	0	0	0	1,600	0	150	Ton
Calf pens	Oct '10 - Sep '11	30	235	0	0	130	0	0	135	Ton
All Sources (liquid)	**Oct '10 - Sep '11**	**3,000,000**	**6,200,000**	**0**	**2,000,000**	**6,197,400**	**0**	**2,000,000**	**3,002,600**	**Gal**
All Sources (solid)	**Oct '10 - Sep '11**	**230**	**1,785**	**0**	**0**	**130**	**1,600**	**0**	**285**	**Ton**
Lagoon 1	Oct '11 - Sep '12	1,713,800	1,400,000	0	1,500,000	2,125,000	0	0	2,488,800	Gal
Lagoon 2	Oct '11 - Sep '12	844,400	1,000,000	0	0	1,314,200	0	0	530,200	Gal
Storage Pond	Oct '11 - Sep '12	444,400	3,800,000	0	0	1,286,200	0	1,500,000	1,458,200	Gal
Barn 20	Oct '11 - Sep '12	150	1,550	0	0	1,172	0	0	528	Ton
Calf pens	Oct '11 - Sep '12	135	235	0	0	293	0	0	78	Ton
All Sources (liquid)	**Oct '11 - Sep '12**	**3,002,600**	**6,200,000**	**0**	**1,500,000**	**4,725,400**	**0**	**1,500,000**	**4,477,200**	**Gal**
All Sources (solid)	**Oct '11 - Sep '12**	**285**	**1,785**	**0**	**0**	**1,465**	**0**	**0**	**605**	**Ton**
Lagoon 1	Oct '12 - Sep '13	2,488,800	1,400,000	0	500,000	2,514,000	0	0	1,874,800	Gal
Lagoon 2	Oct '12 - Sep '13	530,200	1,000,000	0	2,500,000	3,466,600	0	0	563,600	Gal
Storage Pond	Oct '12 - Sep '13	1,458,200	3,800,000	0	0	1,857,300	0	3,000,000	400,900	Gal
Barn 20	Oct '12 - Sep '13	528	1,550	0	0	436	1,500	0	142	Ton
Calf pens	Oct '12 - Sep '13	78	235	0	0	79	200	0	33	Ton
All Sources (liquid)	**Oct '12 - Sep '13**	**4,477,200**	**6,200,000**	**0**	**3,000,000**	**7,837,900**	**0**	**3,000,000**	**2,839,300**	**Gal**
All Sources (solid)	**Oct '12 - Sep '13**	**605**	**1,785**	**0**	**0**	**515**	**1,700**	**0**	**175**	**Ton**
Lagoon 1	Oct '13 - Sep '14	1,874,800	1,400,000	0	0	823,000	0	0	2,451,800	Gal
Lagoon 2	Oct '13 - Sep '14	563,600	1,000,000	0	1,000,000	1,437,740	0	0	1,125,860	Gal
Storage Pond	Oct '13 - Sep '14	400,900	3,800,000	0	0	1,088,400	0	1,000,000	2,112,500	Gal
Barn 20	Oct '13 - Sep '14	142	1,550	0	0	959	650	0	83	Ton
Calf pens	Oct '13 - Sep '14	33	235	0	0	79	100	0	89	Ton
All Sources (liquid)	**Oct '13 - Sep '14**	**2,839,300**	**6,200,000**	**0**	**1,000,000**	**3,349,140**	**0**	**1,000,000**	**5,690,160**	**Gal**
All Sources (solid)	**Oct '13 - Sep '14**	**175**	**1,785**	**0**	**0**	**1,038**	**750**	**0**	**172**	**Ton**
Lagoon 1	Oct '14 - Sep '15	2,451,800	1,400,000	0	1,000,000	2,867,100	0	0	1,984,700	Gal
Lagoon 2	Oct '14 - Sep '15	1,125,860	1,000,000	0	0	0	0	0	2,125,860	Gal
Storage Pond	Oct '14 - Sep '15	2,112,500	3,800,000	0	0	1,592,800	0	1,000,000	3,319,700	Gal
Barn 20	Oct '14 - Sep '15	83	1,550	0	0	0	900	0	733	Ton
Calf pens	Oct '14 - Sep '15	89	235	0	0	0	200	0	124	Ton
All Sources (liquid)	**Oct '14 - Sep '15**	**5,690,160**	**6,200,000**	**0**	**1,000,000**	**4,459,900**	**0**	**1,000,000**	**7,430,260**	**Gal**
All Sources (solid)	**Oct '14 - Sep '15**	**172**	**1,785**	**0**	**0**	**0**	**1,100**	**0**	**857**	**Ton**

6.10. Fertilizer Material Annual Summary

Product Analysis	Plan Period	Product Needed Oct - Dec	Product Needed Jan - Sep	Total Product Needed	Units
28-0-0	Oct '10 - Sep '11	0	3,340	3,340	Gal
28-0-0	Oct '11 - Sep '12	0	3,547	3,547	Gal
46-0-0	Oct '11 - Sep '12	0	29,010	29,010	Lbs
28-0-0	Oct '12 - Sep '13	0	2,980	2,980	Gal
46-0-0	Oct '12 - Sep '13	0	32,280	32,280	Lbs
28-0-0	Oct '13 - Sep '14	0	3,997	3,997	Gal
46-0-0	Oct '13 - Sep '14	0	63,670	63,670	Lbs

6.11. Whole-farm Nutrient Balance (Manure-spreadable Area)

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Total Manure Nutrients on Hand at Start of Plan[1]	106,830	43,780	53,560
Total Manure Nutrients Collected[2]	1,196,325	522,450	722,750
Total Manure Nutrients Imported[3]	0	0	0
Total Manure Nutrients Exported[4]	108,150	92,700	133,900
Total Manure Nutrients on Hand at End of Plan[5]	264,346	106,603	140,093
Total Manure Nutrients Applied[6]	986,983	437,220	500,552
Available Manure Nutrients Applied[7]	543,490	437,220	500,552
Commercial Fertilizer Nutrients Applied[8]	87,167	0	0
Available Nutrients Applied[9]	630,657	437,220	500,552
Nutrient Utilization Potential[10]	781,565	422,541	1,246,587
Nutrient Balance of Spreadable Acres[11*]	-150,908	14,679	-746,035
Average Nutrient Balance per Spreadable Acre per Year[12*]	-36	4	-179

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate total manure nutrients present in storage(s) at the end of plan.
6. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
7. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 6) after accounting for state-specific nutrient losses due to rate, time and method of application.
8. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
9. Values are the sum of available manure nutrients applied (row 7) and commercial fertilizer nutrients applied (row 8).
10. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
11. Values indicate available nutrients applied (row 9) minus crop nutrient utilization potential (row 10). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
12. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 11) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

Whole-farm Nutrient Balance (Non-manure-spreadable Area)

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Commercial Fertilizer Nutrients Applied[1]	11,793	0	0
Nutrient Utilization Potential[2]	23,085	405	6,910
Nutrient Balance of Non-spreadable Acres[3*]	-11,292	-405	-6,910
Average Nutrient Balance per Non-spreadable Acre per Year[4*]	-83	-3	-51

1. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
2. Values indicate nutrient utilization potential of crops grown based on crop fertilizer recommendations.
3. Values indicate commercial fertilizer nutrients applied (row 1) minus crop nutrient utilization potential (row 2). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
4. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of non-spreadable acres (row 3) by number of non-spreadable acres in plan. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

6-12. Projected Soil P & K levels.

Projected Soil P And K Levels

Plan File: S:\TENNESSEE-projects\Hatcher Riverside Dairy\Riverside Dairy CNMP_2011-2015\Riverside_Dairy.mmp ***Last Saved:*** 9/16/2011
Operation: Riverside Dairy Inc ***State:*** Tennessee ***Init. File Rev:*** 6/4/2009

Field ID	*Sub ID*	*P Level At Start Of Plan*	*P Level At End Of Plan*	*K Level At Start Of Plan*	*K Level At End Of Plan*	*Units*
1H-Alfalfa		399	384	449	352	Lb/A
2H-BridgeBottom		352	337	444	347	Lb/A
3H-Donnies		62	72	318	260	Lb/A
4H-Hoss 1		167	177	204	150	Lb/A
5H-Hoss 2		129	144	121	120	Lb/A
6H-Leach		68	60	286	236	Lb/A
7H-Presswood 2		79	70	194	145	Lb/A
8H-Presswood		40	110	124	100	Lb/A
9H-Red-Hill		327	312	387	290	Lb/A
10H-Taylor-Bott		83	113	381	325	Lb/A
11H-Tree-Bottom		236	282	280	255	Lb/A
13-H-4		163	156	215	155	Lb/A
14-H-6		163	162	215	195	Lb/A
15-H-9		139	176	700	700	Lb/A
16-H-10		137	141	561	541	Lb/A
17-H-15		133	140	280	260	Lb/A
18-H-18		256	255	184	165	Lb/A
19-H-19		117	109	268	216	Lb/A
20-H-21		68	68	302	250	Lb/A
21-MAirporthil		26	26	50	50	Lb/A
22-M-Lawson		56	99	320	260	Lb/A
23-Moorehouse1		92	123	346	286	Lb/A
24-Moorehouse2		34	93	327	393	Lb/A
25-Moorehouse3		38	30	168	116	Lb/A
26-M-Vest		65	120	243	228	Lb/A

Notes
Equations used to determine change in soil test P and K:
Change in P (Lb/A) =net P2O5 / 9
Change in K (Lb/A) = net K2O / 4

Section 7. Feed Management

Section 8. Other Utilization Options

No alternative utilization options are in used at this time with the exception of composting.

The practice of composting manure could be expanded in the future, with possible sales of compost as additional revenue to the farm.

Benefits of composting include:

- Composted material is an odorless, fine-textured, low-moisture material.
- Compost can be an excellent source of organic matter, nitrogen and other nutrients.
- Nitrogen in compost is stabilized and not as easily available to the crop as nitrogen from the raw material.
- Availability of phosphorus, potassium, and micronutrients from compost should be similar or higher than manure or other organic residues used for composting.
- Since compost is fine textured and has less water than the raw material, it can be applied more uniformly and with better control.
- The composted material also can be stored and applied when convenient.
- Weed seeds or pathogens that can create problems with application of manure or other organic residues should not be a concern when properly made compost is used.

References included in this section:

Cornell Manure Management Program, “Aerobic composting affects manure’s nutrient content.” March, 2006.

Kansas Dept of Health & Environment, “Composting at Livestock Facilities” Nov. 2003.

University of Nebraska Extension publication #G97-1315, “Composting Manure and other Organic Residues”, 1997.

Section 9. Record Keeping Forms
Annual Reports 2011-2015

Section 10. References

10.1. Publications

Crop Fertilizer Recommendations

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Aug 2008
http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

Manure Application Setback Features/Distances

Nutrient Management Standard 590
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

TN DEQ Rule 1200-4-5-.14(17)(d)
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

TN DEQ Rule 1200-4-5-.14(17)(d)
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

Manure Nutrient Availability

"Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94
http://wastemgmt.ag.utk.edu/ExtensionProjects/extension_publications.htm

Phosphorus Assessment

"Tennessee Phosphorus Index," Tennessee NRCS, Nov. 2001

Practice Standards

Tennessee NRCS Nutrient Management Standard (590), Jan. 2003
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

10.2. Software and Data Sources

MMP Version	MMP 0.3.0.1
MMP Plan File	Riverside_Dairy.mmp 8/31/2011 4:43:59 AM
MMP Initialization File for Tennessee	6/4/2009
MMP Soils File for Tennessee	9/8/2010
Phosphorus Assessment Tool	2009.02.20
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	Version: 1.32.3.0 Build: Dec 17 2007 Science: 20061020
RUSLE2 Database	moses-IL.gdb